



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali		
ACADEMIC YEAR	2018/2019		
MASTER'S DEGREE (MSC)	FIRM AND QUALITY FOR THE AGRICULTURAL AND FOOD SYSTEM		
SUBJECT	MICROBIOLOGY OF ANIMAL PRODUCTS		
TYPE OF EDUCATIONAL ACTIVITY	B		
AMBIT	50549-Discipline della fertilità e conservazione del suolo		
CODE	18591		
SCIENTIFIC SECTOR(S)	AGR/16		
HEAD PROFESSOR(S)	SETTANNI LUCA	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)			
CREDITS	6		
INDIVIDUAL STUDY (Hrs)	90		
COURSE ACTIVITY (Hrs)	60		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	SETTANNI LUCA Wednesday 11:00 - 13:00 Dipartimento Scienze Agrarie, Alimentari e Forestali, Edificio 5, Ingresso A. I giorni e gli orari indicati per il ricevimento sono relativi al periodo in cui sono svolte le lezioni. Gli incontri si possono concordare via email o telefonica negli altri periodi.		

DOCENTE: Prof. LUCA SETTANNI

PREREQUISITES	Knowledge of general microbiology
LEARNING OUTCOMES	<ul style="list-style-type: none"> - Knowledge and ability to understand. Acquisition of advanced tools for understanding and evaluation of microbial processes of animal food productions. Ability to use the specific technical language. - Ability to apply knowledge and understanding. Ability to assess the needs of the microbial communities of fermented animal food products. - Making judgements. To be able to evaluate the implications and results of the microbiological transformation of animal raw materials. In the light of the knowledge acquired, to interpret the determining factors in animal foods. To be able to act specifically to prevent or limit the imbalances or the irreversible changes in the relationships between the microbial populations of animal food products. - Communication abilities. Ability to expose the mechanisms of microbial interactions to laboratory technicians, and the results of the analysis also to a non-expert public. To be able to apply a suitable synthetic and technical language to communicate problems and to suggest useful solutions. - Learning skills. To acquire the ability to identify the microbiological aspects relevant for fermented animal food productions and to suggest intervention solutions with modern techniques and methodologies through continuous updates and scientific consultations.
ASSESSMENT METHODS	<p>The oral test consists of an interview to ascertain the skills and disciplinary knowledge provided by the course; the evaluation is expressed in thirtieths. The questions will verify a) the knowledge acquired through the ability to establish connections among the different topics of the course, b) the processing abilities through the comprehension of the applications or their implications within the course, c) the reaching of presentation/speaking skills through the demonstration of a given appropriate technical language within the professional context.</p> <p>The threshold for sufficiency will be gained when the student shows knowledge and understanding of topics, at least in their guidelines, and has minimum levels of applied skills concerning the solution of specific case studies; he should be in possess of talking abilities and of a correct use of language for the specificity of the course. Below this threshold the exam will be assessed as insufficient. The more the student shows argumentative and talking capacities, besides knowledge going into details of the discipline, the more his assessment will be positive till the grade of excellence.</p>
EDUCATIONAL OBJECTIVES	The course aims to provide the basis of the microbiology of animal food products through the study of the microbiological processes of raw materials transformation. The course, through laboratory sessions, aims to provide the student manual skills necessary for the microbiological analyses of raw materials and final products. The approach applied will include classical culture-dependent tools as well as culture-independent techniques.
TEACHING METHODS	The course includes 42 hours of lecture and 18 hours of laboratory sessions
SUGGESTED BIBLIOGRAPHY	Farris G.A., Gobbetti M., Neviani E., Vincenzini M. (2012) Microbiologia dei prodotti alimentari, Casa Editrice Ambrosiana

SYLLABUS

Hrs	Frontal teaching
3	Food microorganisms
4	Ecological factors affecting the growth and activity of microorganisms in foods
2	Pathogenic microorganisms
2	Spoilage microorganisms
1	Microorganisms indicators of microbiological quality and safety of foods
2	Pro-technological and probiotic microorganisms and starter cultures
2	Meat microorganisms
2	Microbiology of non fermented cured meat products
4	Salami production and evolution of fermenting microorganisms
1	Roles of moulds and yeasts during salami production
3	Microorganisms of raw milk, rennets and equipment
3	Starter cultures of dairy products
3	Cheese ripening
2	Bacteriophages
3	Microorganisms of salted fishes
1	Microorganisms of honey
4	Phenotypic and genotypic identification; bacterial typing; culture-independent methods for the microbiological analysis of cheeses and salami

Hrs	Practice
4	Classical microbiological analysis of raw materials (raw milk, minced meat and ingredients)
4	Cheese production with added starters and evaluation of the main technological parameters
4	Salami production with added starters and evaluation of the main technological parameters
3	Isolation and phenotypic characterization of lactic acid bacteria from cheeses and salami during ripening
3	Genotypic identification of dominant bacteria during ripening of experimental cheeses and salami