



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	
<b>ACADEMIC YEAR</b>	
<b>ANNO ACCADEMICO EROGAZIONE</b>	
<b>SUBJECT</b>	
<b>CODE</b>	
<b>SCIENTIFIC SECTOR(S)</b>	
<b>HEAD PROFESSOR(S)</b>	SETTANNI LUCA      Professore Associato      Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	
<b>CREDITS</b>	
<b>PROPAEDEUTICAL SUBJECTS</b>	
<b>MUTUALIZATION</b>	
<b>YEAR</b>	
<b>TERM (SEMESTER)</b>	
<b>ATTENDANCE</b>	
<b>EVALUATION</b>	
<b>TEACHER OFFICE HOURS</b>	<b>SETTANNI LUCA</b> 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

<b>PREREQUISITES</b>	Knowledge of general microbiology
<b>LEARNING OUTCOMES</b>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- Ability to apply knowledge and understanding. Ability to assess the needs of the microbial communities of fermented animal food products.</li> <li>- 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.</li> <li>- 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.</li> <li>- 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.</li> </ul>
<b>ASSESSMENT METHODS</b>	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.
<b>EDUCATIONAL OBJECTIVES</b>	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.
<b>TEACHING METHODS</b>	The course includes 42 hours of lecture and 18 hours of laboratory sessions
<b>SUGGESTED BIBLIOGRAPHY</b>	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

<b>Hrs</b>	<b>Practice</b>
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