

COURSE: Technologies of Processing and Packaging of Dairy Products

ACADEMIC YEAR: 2017 / 2018

TYPE OF EDUCATIONAL ACTIVITY: Characteristic

TEACHER: Marisa C. Caruso

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Language: Italian

ECTS: 9 (8 lessons + 1 tutorials/practice)	n. of hours: 80 (64 lessons and 16 tutorials/practice)	Campus: Potenza School: School of Agricultural, Forestry, Food and Environmental Sciences (SAFE) Program: MSc in Food Science and Technology	Semester: I
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EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The aim of the course is to develop skills in the dairy sector. Starting from the study of the chemical and physical phenomena involved in the stability and modifications of the components of the milk, the elements for the knowledge of the technological processes used for the production of milk derivatives will be provided.

- **Knowledge and understanding:** The course's attendance and will allow to acquire the knowledge to address the issues of milk and milk processing both from a process and product point of view. In particular, the issues relating to the evaluation and standardization of raw materials, the management of semi-finished products, the production, storage and conditioning of the finished product and the sanitization of the plants will be discussed. In addition to the study of consolidated technologies, the innovative technologies applied to production, the use of by-products and the shelf-life improvement will be considered.
- **Applying knowledge and understanding:** Ability to assess the needs of dairy companies in relation to the type of products and to set up research and development programs.
- **Making judgements:** Ability to suggest the adoption of modern techniques or technologies to improve the quality of products
- **Communication skills:** Ability to use a technically correct language in the relationship with industry operators in order to address them in the choices that will help maintain a good quality level of products, even with regard to the environment protection and by-products valorization. Ability to interact with supervisory authorities, food safety agencies and industry experts.
- **Learning skill:** Acquire the ability to critically link and analyze the various factors affecting dairy production and to follow their evolution through the consultation of scientific material and regulatory updates.

PRE-REQUIREMENTS

To understand the material presented in this course the following knowledges, that these are usually provided in BSc courses in Food Science and Technology, are needed: Mathematic, Phisic, General and Organic Chemistry, Food microbiology and hygiene, Food unit operations, Food technology, Food analysis & quality.

SYLLABUS

The group is divided in 9 teaching blocks.

Block 1 (8h, lectures):

Milk composition and variability factors. Thermal treatments. Tradition and typicality. Innovation in production and market.

Block 2 (8h, lectures):

Milk, fermented milk and yogurt.

Block 3 (8h, lectures):

Characteristics, processing, preservation and packaging of soft cheese, pasta filata cheese and erborinated cheese.

Block 4 (8h, lectures):

Characteristics, processing, preservation and packaging of short, medium and long ripening cheeses.

Block 5 (8h, lectures):

Characteristics, processing, preservation and packaging of butter, ricotta, mascarpone, ice cream. Main coadiuvants and technical means allowed to prevent defects and alterations in dairy products.

Block 6 (8h, lectures):

Standardization of raw materials. Management of semi-finished products. New generation products and ingredients. Enhancement of by-products and disposal of residues.

Block 7 (8h, lectures):

Management of sanitation in dairy plants: products, procedures, documentation. Evaluation of effectiveness.

Block 8 (8h, lectures):

Tests of accelerated shelf-life. Functional packaging. Printing, labeling and coding.

Block 9 (16h, practical activity):

The student improves the knowledge of the subjects discussed in the lectures with active participation in laboratory experiments and technical visits to dairy industries.

TEACHING METHODS

The course is based on 9 teaching blocks and it includes 64 h lectures and 16 h practical tutorials. The students will actively participate in laboratory experiments that are intended to provide useful skills for the development and monitoring of dairy products.

EVALUATION METHODS

Learning will be assessed through periodical discussion of the theoretical concepts and with an oral examination at the end of the course. The oral exam consists of questions by which the student must demonstrate knowledge of the subjects and the ability to connect them, with particular focus on a subject on which the student will have performed a personal bibliographic study previously agreed with the teacher. To pass the test you must acquire at least 18 points out of 30.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- Bozzetti V. Manuale lattiero caseario (Vol. 1 e 2). Tecniche Nuove.
 - Salvadori del Prato O. Trattato di tecnologia casearia. Edagricole.
 - Salvadori del Prato O. Tecnologia del latte. Materie prime e processi di lavorazione. Edagricole – New Business Media.
 - Corradini C. Chimica e tecnologia del latte. Tecniche Nuove.
 - Del Nobile M.A., Conte A. Packaging for food preservation. Springer.
 - Piergiovanni L., Limbo S. Food packaging. Materiali, tecnologie e qualità degli alimenti. Springer -Verlag.
 - Lecturer's note of the course and PDF files, reprints, ect.
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INTERACTION WITH STUDENTS

At the beginning of the course, after describing the objectives, program and test procedures, teacher collects the list of students accompanied by telephone number, registration number and e-mail. The teacher receives generally on Monday and Thursday from 15.00 to 17.00 and on Wednesday from 10.30 to 13.30 (SAFE 2nd floor-3A218 room) and she is available at all times for a contact with the students, through its telephone or e-mail.

EXAMINATION SESSIONS (PREDICTED)¹

14/02/2018, 14/03/2018, 11/04/2018, 16/05/2018, 13/06/2018, 18/07/2018, 19/09/2018, 17/10/2018, 14/11/2018, 12/12/2018, 18/01/2019, 14/02/2019.

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

¹Subject to possible changes: check the web site of the Teacher or the Department/School for updates.