COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Food and Nutritional Sciences		
ACADEMIC UNIT	FOOD SCIENCE AND HUMAN NUTRITION		
LEVEL OF STUDIES	INTEGRATED MASTER		
COURSE CODE	**3401**	**SEMESTER**	**8**
COURSE TITLE	**DAIRY TECHNOLOGY II – CHEESE SCIENCE**		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures and Laboratory Exercises	3L+2P	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialised general knowledge
PREREQUISITE COURSES:	Dairy Science, Dairy Technology I
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	https://oeclass.aua.gr/eclass/courses/ETDA203/ https://oeclass.aua.gr/eclass/courses/ETDA111/ https://oeclass.aua.gr/eclass/courses/ETDA203/
INSTRUCTORS Lectures & Laboratory Exercises	**LECTURES** Theofilos Massouras, Professor Golfo Moatsou, Professor Ekaterini Moschopoulou, Assistant Professor **LABORATORY EXERCISES** Theofilos Massouras, Professor Golfo Moatsou, Professor Ekaterini Moschopoulou, Assistant Professor Evangelia Zoidou, Teaching Assistant Theodoros Paschos, Technical staff Dimitra Kytinou, Technical staff

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The objective of the lesson is the integrated presentation of cheese science and technology.
At the end of studies, the student:

- will have understood the complex mechanisms involved in cheese curd and ripening and whey treatment.
- will have obtained practical experience in the production of the major groups of cheese.
- will have the ability to combine different types of processing and evaluate their results on cheese manufacture and properties.
- will be able to plan and organize the production of typical and specialty cheese products.
- will be able to organize and implement a whey exploitation scheme.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

- Adapting to new situations
- Decision-making
- Working independently
- Team work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project planning and management
- Respect for the natural environment

(3) SYLLABUS

Lectures

1. The role and prospects of cheese in Greek and world food production. Cheese manufacturing units.
2. Raw materials. Coagulation of milk
3. Microbial cultures and types of microorganisms in cheese
4. Production stages of cheese
5. Categories of cheese-Part I
6. Categories of cheese-Part II.
7. Cheese ripening.
8. Packaging, preservation, composition and cheese yield
9. Physical and organoleptic properties of cheese
10. Defects of cheeses and problem solving.
11. Whey: Composition, properties, exploitation.
12. Processed cheese and other dairy products.
13. Current trends in Cheese Technology.

Laboratory courses/exercises

Ten to thirteen Laboratory Exercises with the active participation of students on semi-pilot production, evaluation of various types of cheese and problem solving.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	In the classroom, face-to-face Distance learning, when necessary

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Power point and video presentations
Asynchronously using the platform e-class
Distance learning, using the MS Teams platform
E-mail</td></tr>
<tr><td>TEACHING METHODS
The manner and methods of teaching are described in detail.
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>13 weekly lectures (3 h/ lecture + personal study)</td><td>39</td></tr>
<tr><td>Laboratory exercises on the manufacture of various cheese varieties and cheese analysis in small groups of students</td><td>26</td></tr>
<tr><td>Personal study</td><td>50</td></tr>
<tr><td>Written reports on laboratory exercises</td><td>10</td></tr>
<tr><td>Course total</td><td>125</td></tr>
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<tr><td>STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>THEORY: Written final exam in Greek (100%) on the content of the Lectures that combines short-answer questions, open-ended questions, multiple choice questionnaires.

LABORATORY: Written final exam in Greek (80%) and (if requested) written reports (20%). When reports have not been requested, written final exam (100%).

The exam questions are derived from the textbooks offered to the students, the material posted on e-class by the Instructors and the teaching procedure.</td></tr>
</table>

(5) ATTACHED BIBLIOGRAPHY

Selections of textbooks that are available through the online service "EVDOXOS"

- Anifantakis. E. (2004). [Cheese (Chemistry - Physical Chemistry - Microbiology)], A. Stamoulis Editions, Athens. In Greek.
- Bintsis Th. and Papadimas F. (2009) [Cheese]. P. Psychalos & Co. Publishing O.E. Athens. In Greek.

Other suggestions

- Eck A. & Gillis J.C. (2000) Cheesemaking: from Science to Quality Assurance. 2nd Ed., Lavoisier.
- Walstra P., Vouters J. & Geurts, T. (2006) Dairy Science and Technology, 2nd Ed., CRC Press - Taylor & Francis Group.
- Law B.A. & Tamime A.Y. (2010) Technology of Cheesemaking. 2nd Ed., Blackwell Publishing Ltd - John Wiley & Sons Ltd.
- McSweeney P.L.H., Fox P.F., Cotter P.D. & Everett D.W. (2017) Cheese: Chemistry, Physics and Microbiology. 4th Ed., Academic Press - Elsevier Ltd.
- Puniya A.K. (2016) Fermented milk and dairy products. CRC Press – Taylor & Francis Group.
- Papademas P. & Bintsis T. (2018) Global Cheesemaking Technology: Cheese Quality and Characteristics. John Wiley & Sons, Ltd.

Scientific Journals

- *Journal of Dairy Science*
- *Journal of Dairy Research*
- *International Dairy Journal*
- *Dairy Science and Technology*
- *International Journal of Dairy Technology*
- *Innovative Food Science and Emerging Technologies*
- *Foods*
- *Dairy*