

COURSE OUTLINE

1. GENERAL

SCHOOL	School of Food and Nutrition Sciences		
ACADEMIC UNIT	Department of Food Science and Human Nutrition		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	3460	SEMESTER	9
COURSE TITLE	TECHNOLOGY OF ALCOHOLIC DRINKS		
INDEPENDENT TEACHING ACTIVITIES <i>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</i>	WEEKLY TEACHING HOURS	CREDITS	
Theory	3	5	
Lab exercises	2		
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialised general knowledge		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://oeclass.aua.gr/eclass/courses/ETDA190/		

2. LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <p><i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i></p> <p><i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i></p> <p><i>Guidelines for writing Learning Outcomes</i></p>
<p>After the successful completion of the theoretical courses, the students will have acquired knowledge related to the theory of distillation and the production technology of spirits and alcoholic beverages in general. They will be able to know:</p> <p>What are alcoholic beverages (definitions, historical overview, their distribution around the world). Issues concerning ethanol (definition, legislation, consumption and its effects on the human body). Basic principles and main types of distillation. Issues during distillation and how can one handle the whole process to produce the desired products. Technology of Greek drinks and spirits. Raw materials and method of preparation of tsipouro (grape pomace spirit), grape spirit, ouzo. Distillery Equipment and Stills depending on the product.</p>

Raw materials, production technology and corresponding equipment of international drinks such as whiskey, gin, tequila, vodka, rum, cognac, grappa.

Raw materials, production technology and corresponding equipment to produce flavoured wines, other flavoured alcoholic beverages and liqueurs

Beer production. Raw materials, types of beer, production technology, equipment.

After the successful completion of the laboratory exercises, students will be able to:

Determine the ethyl alcohol in any alcoholic beverage and calculate it in terms of volume and weight of anhydrous alcohol.

Know how to operate a tsipouro still and to distil grape bunches and wine with a simple distillation and using a fractional column. To measure and calculate the alcohol received.

Make a laboratory scale distillation of ouzo and to find yields regarding the receipt of alcohol. To identify the smells from the seeds they use and prepare recipes. Do anethole test.

Prepare liqueurs by mixing raw materials and adjust the final product in terms of alcohol, sweetener and flavouring ingredients.

Tasting alcoholic beverages and spirits and evaluating them with descriptive analysis with and without a scale. Special emphasis is placed on the evaluation of aged spirits.

In all cases they learn to understand the different fields, to evaluate the methods and procedures and to form an opinion about the result produced.

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?

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

Working in an interdisciplinary environment

Search for, analysis and synthesis of data and information, using the necessary technologies

Working independently

Teamwork

Adapting to new situations

Decision making

Criticism and self-criticism

Production of free, creative and inductive thinking

3. SYLLABUS

THEORY:

- Introductory (Objectives of the course, Historical review, development, contemporary trends).
- Determination of ethyl alcohol of alcoholic beverages (How, why, methods, evolution).
- Consumption of alcoholic beverages, absorption and catabolism, metabolic and nutritional consequences. More general health effects (positive-negative).

- Legislation of alcoholic beverages (production, consumption, labelling, advertising, tax in Greece and the EU).
- Distillation - general principles (two-component systems, distillation methods).
- Volatile compounds other than ethanol (higher alcohols, esters, acids, aldehydes, acetals, etc.).
- Spirits from grape-marc (tsipouro, tsikoudia). Raw material, production process, still.
- Grappa-ouzo (raw materials, production process, equipment).
- Brewing (raw materials, process, types of beer).
- Whiskey (raw materials, production process, equipment)
- Jin (raw materials, production process, equipment)
- Tequila (raw materials, production process, equipment)
- Vodka (raw materials, production process, equipment)
- Rum, Cognac, Armagnac, Liqueur (raw materials, production process, equipment)

LABORATORY:

- Determination of ethanol in alcoholic beverages. Calculation by volume and by weight. Calculation of total quantity.
- Distillation of grapes or wine with a laboratory copper still. Distillation handling, fraction collection, ethanol calculation. Simple distillation, fractional column distillation.
- Ouzo distillation. Familiarity with raw materials, recipes, collection of fractions, ethanol balance, olfactory evaluation, anethole test.
- Preparation of mastic liqueur. Material mixing calculations. Organoleptic evaluation. Comparisons, conclusions.
- Organoleptic evaluation of aged spirits. Descriptive analysis.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Teaching in a live auditorium with the possibility of distance learning. Practical exercises in the laboratory or in the laboratory's mini winery												
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	In lectures, they are used: <ul style="list-style-type: none"> ➤ remote meeting tools (cisco Webex), ➤ presentation software (power point type) ➤ use of a traditional table for exercises <p>In addition, students use office automation tools, web browsers as well as e-readers for digital books.</p>												
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>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.</i>	<table border="1"> <thead> <tr> <th style="background-color: #e0e0e0;">Activity</th> <th style="background-color: #e0e0e0;">Semester workload</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>36</td> </tr> <tr> <td>Laboratory practice</td> <td>20</td> </tr> <tr> <td>Interactive teaching</td> <td>10</td> </tr> <tr> <td>Project</td> <td>24</td> </tr> <tr> <td>Individual study</td> <td>35</td> </tr> </tbody> </table>	Activity	Semester workload	Lectures	36	Laboratory practice	20	Interactive teaching	10	Project	24	Individual study	35
Activity	Semester workload												
Lectures	36												
Laboratory practice	20												
Interactive teaching	10												
Project	24												
Individual study	35												

<p>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</p>	<p>Course total</p>	<p>125</p>
<p>STUDENT PERFORMANCE EVALUATION Description of the evaluation procedure</p> <p>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</p> <p>Specifically defined evaluation criteria are given, and if and where they are accessible to students.</p>	<p>Final written theory exam with short answer or multiple-choice questions or true/false questions. Written exam for the lab with short-answer or multiple-choice questions or outcome assessment. The final grade results from the average of the theory and laboratory grades.</p>	

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
Soufleros E. WINE AND SPIRITS (2ND EDITION). Soufleros E, Publ.
Tsakiris Argyris. POTOGRAPHY (2ND EDITION). PSYCHALOS PHILIPPOS & CO. PUBLISHING O.E.
Rodovitis, B. A., Soufleros, E. H.R. (2004). Tsipouro and tsikoudia, the Greek brandy spirit, Thessaloniki.
The alcohol Textbook / 1999 Edited by KA Jacques, TP Lyons
La distillation modern des fruits UN GUIDE POUR LES DISTILLATEURS H. Tanner et H. Brunner-EDITIONS HELLER 1982 TRADUIT DE L'ALLEMAND PAR DANIEL COLLE (nouvelle edition 2009)
Regulation (EEC) no. 1238/92 of the Commission of 8 May 1992 establishing the Community methods of analysis of neutral alcohol applicable to the wine sector

- Related academic journals:
Food and Beverages
Phytochemistry
Bulletin d' OIV
Revue Française d' Oenology
American journal of Enology and Viticulture