

**1. General information****Course:** ENOLOGY**Type:** CORE COURSE**Degree:** 383 - UNDERGRADUATE DEGREE PROGRAMME IN FOOD SCIENCE AND TECHNOLOGY**Center:** 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY**Year:** 4**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 58328**ECTS credits:** 6**Academic year:** 2022-23**Group(s):** 22**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** MARIA CONSUELO DIAZ-MAROTO HIDALGO - Group(s): 22

Building/Office	Department	Phone number	Email	Office hours
Marie Curie / IRICA	Q. ANALÍTICA Y TGIA. ALIMENTOS	6743	mariaconsuelo.diaz@uclm.es	Thursday and Friday, from 12:00 to 13:30 h.

**Lecturer:** MARIA SOLEDAD PEREZ COELLO - Group(s): 22

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**2. Pre-Requisites**

Not established

**3. Justification in the curriculum, relation to other subjects and to the profession**

## 1. Contribution of the subject in the curriculum:

Spain is the third wine producing country and has the largest vineyard extension in the world. Castilla-La Mancha concentrates half of the vineyard area and Spanish wine production and is the largest wine region in the world. In recent years, the enological sector of Castilla-La Mancha is making an effort to position itself at the forefront of wine regions, in terms of quality and market share. For all these reasons, it is essential that the subject "Enology" be included in Food Science and Technology Degree of the UCLM.

## 2. Relation to other subjects:

The enology program has autonomy but depends on the rest of the subjects of the degree program in Food Science and Technology at UCLM. Thus, some subjects whose contents can be applied in Enology are Bromatology and Sensorial Analysis.

## 3. Relation to the profession:

Enology encompasses all the necessary operations from grape harvesting to wine bottling, a process that combines science, technology and engineering. Science and technology have a place in the Degree in Food Science and Technology, however the engineering aspects will be left to the corresponding engineering degrees.

**4. Degree competences achieved in this course****Course competences**

Code	Description
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
E04	To know the basic fundamentals of instrumentation and process control in the food industry
E05	To know the composition, phyco-chemical properties, nutritional value and sensory properties of foods
E06	To know and be able to handle the techniques and procedures of food analysis
E08	To be able to apply the technological advances and the innovation in foods and food processing processes in the food industry and to evaluate their acceptability by consumers
E09	To know, optimize and control the production and conservation food processes
E10	To acquire knowledge on equipments and systems for the automatization and control of food processing
E11	To qualify to be able to evaluate the effects of processing on the components and properties of foods
E12	To acquire knowledge on microbiology and biotechnology and their applications in the food processing
E13	To know the organoleptic properties of foods and be able to apply methodology and techniques of sensory analysis
E18	To acquire knowledge on food legislation and normalization. To counsel legally, scientifically and technocally the food industry and consumers.
E19	To know the fundamentals of quality and traceability systems and be able to perform their deploy, as well as to evaluate and control the food quality
E22	To perform formation of staff in the food sector
E24	To assure and improve the nutritional quality and the health properties of ingredients and foods

G05	To understand and to use the English language, both written and spoken, applied to the area of the Food Science and Technology. (To be able to acquire this ability, a series of actions that will be specified in every module will be performed).
G06	To dominate the Technologies of the Information and the Communication (TIC) to user's level, which allows to work in virtual spaces, Internet, electronic databases, as well as with common software packages (e.g. Microsoft Office).
G07	To possess ability of organization and planning, initiative, entrepreneurship and aptitude to be employed in teamworks. To possess capacity of resolution of specific problems of the professional area and to develop the critical reasoning and decision making.
G09	To develop the motivation for quality, the capacity to adapt to new situations and the creativity.

## 5. Objectives or Learning Outcomes

### Course learning outcomes

#### Description

To advance in the knowledge of the physico - chemical, nutritional and functional properties, as well as the alterations that can experiment the cereals and its derivatives, as well as of different type of drinks.

To learn how to detect the origin of defects in processed foods and their possible prevention or correction.

To have knowledge on the quality control and the procedures that guarantee the traceability of the meat and dairy products, wine, fats and oils.

To qualify the student in order to determine the effects of the technological processes on the composition of the above mentioned food.

To acquire skills regarding the physico-chemical analysis in the food (edible fats, grape and wine, dairy and meat products).

To acquire basic and applied knowledge on the majority and minority chemical compounds with influence in the sensory properties (color, smell, flavor, texture), or related to technological processes or of instability of the different food studied.

## 6. Units / Contents

### Unit 1: Introduction. Statistics and regulations

### Unit 2: Basic knowledge of viticulture

### Unit 3: The maturation of the grape and the harvests

### Unit 4: Chemical composition of grapes, must and wine

### Unit 5: Wine aroma

### Unit 6: Alcoholic fermentation and yeasts

### Unit 7: Malolactic fermentation and lactic bacteria

### Unit 8: Enzymes in oenology

### Unit 9: Winemaking: main unit operations

### Unit 10: White winemaking

### Unit 11: Rosé winemaking

### Unit 12: Red winemaking

### Unit 13: Sparkling winemaking

### Unit 14: Sherry wines

### Unit 15: Clarification and stabilization of wines

### Unit 16: Clarification of wines by physical procedures

### Unit 17: Wine stabilization

### Unit 18: Wine aging

### Unit 19: Wine bottling

### Unit 20: Sensory analysis of wines

## 7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures		1.28	32	N	-	
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities		0.85	21.25	Y	Y	
Workshops or seminars [ON-SITE]	Workshops and Seminars		0.1	2.5	Y	N	
Group tutoring sessions [ON-SITE]	Group tutoring sessions		0.05	1.25	N	-	
Writing of reports or projects [OFF-SITE]	Self-study		0.8	20	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study		2.8	70	N	-	
Final test [ON-SITE]	Assessment tests		0.12	3	Y	Y	
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.4</b>			<b>Total class time hours: 60</b>				
<b>Total credits of out of class work: 3.6</b>			<b>Total hours of out of class work: 90</b>				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

## 8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Laboratory sessions	20.00%	20.00%	The work done in practice and the grade obtained in the test or practice report will be considered.
Assessment of problem solving and/or case studies	10.00%	10.00%	The grade obtained in the seminars delivered will be

Final test	70.00%	70.00%	considered.
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

#### Evaluation criteria for the final exam:

##### Continuous assessment:

The final grade will be obtained by weighing the grades obtained in the different activities carried out according to the criteria specified in the table above.

##### Non-continuous evaluation:

The final grade will be obtained by weighing the grades obtained in the different activities carried out according to the criteria specified in the table above.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Keith Grainger y Hazel Tattersall	Producción de vino. Desde la vid hasta la botella.	Acribia			2007	
Molina, R.	Teoría de la clarificación de mostos y vinos y sus aplicaciones.	AMV/Mundi-Prensa			2000	
Ough, C. S.	Tratado básico de enología.	Acribia			1996	
Peynaud, E.	Enología práctica: conocimiento y elaboración del vino.	Mundi-Prensa			1989	
Rankine, B.	Manual práctico de enología.	Acribia			1999	
Ribereau-Gayon, P., Dubourdieu, D., Doneche, B., Londvaud, A.	Handbook of Enology. Volume 1. The Microbiology of wine and Vinifications.	Wiley			2000	
Ribereau-Gayon, P., Glories, Y., Maujean, A., Dubourdieu, D.	Handbook of Enology. Volume 2. The Chemistry of Wine Stabilization and Treatments.	Wiley			2000	
Zamora, F.	Elaboración y crianza del vino tinto: Aspectos científicos y prácticos.	AMV y Mundi-Prensa			2003	
Flanzy, C.	Enología: fundamentos científicos y tecnológicos.	AMV/Mundi-Prensa			2000	
Girard, Guillaume	Bases científicas y tecnológicas de la enología.	Acribia			2004	