UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: STRUCTURE AND PROPERTIES OF FOOD COMPONENTS
Code: 58312
Type: CORE COURSE
ECTS credits: 6
Degree: 383 - UNDERGRADUATE DEGREE PROGRAMME IN FOOD SCIENCE AND TECHNOLOGY
Academic year: 2023-24
Center: 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY
Group(s): 22
Year: 2
Duration: First semester
Main language: Spanish
Second language:
Use of additional languages:
English Friendly: Y
Web site:
Bilingual: N

Lecturer: **MIGUEL ANGEL GONZALEZ VIÑAS** - Group(s): **22**

Building/Office	Department	Phone number	Email	Office hours
Marie Curie	Q. ANALÍTICA Y TGIA. ALIMENTOS	+34926052167	miguelangel.gonzalez@uclm.es	Send an e-mail to the teacher to arrange a date and time.

Lecturer: **EVA SANCHEZ PALOMO LORENZO** - Group(s): **22**

Building/Office	Department	Phone number	Email	Office hours
Marie Curie	Q. ANALÍTICA Y TGIA. ALIMENTOS	+34926052167	eva.sanchez@uclm.es	Send an e-mail to the teacher to arrange a date and time.

2. Pre-Requisites

Not established

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

To know the structure and components of foods, as well as their function and behaviour within them, is fundamental for a Food Technology. This course helps the student to understand the necessary conditions for each technological process, various aspects of human nutrition and is also the basis for the study of food composition. On the other hand, the study of the functional properties of each component opens a great number of possibilities when creating new products or modifying characteristics of existing ones

4. Degree competences achieved in this course

Course competences

Code	Description
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
E03	To know and be able to apply fundamentals of chemistry, as well its applications in analytical chemistry, organic chemistry, physical chemistry and inorganic chemistry in the field of the Food Science and Technology
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
E11	To qualify to be able to evaluate the effects of processing on the components and properties of foods
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
G01	To develop the aptitude to gather and interpret information and data to issue critical judgments that include a reflection on relevant topics of social, scientific or ethical nature.
G02	To possess a correct oral and written communication. To transmit information, ideas, problems and solutions to a both specialized and not specialized public.
G04	To develop the necessary skills of learning to undertake later studies with a high degree of autonomy.
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 identify and evaluate the effects produced by enzymatic and non-enzymatic browning in food

To understanding the physical, chemical and functional properties of food

To know and correct the effects of food processing on minority components (vitamins, pigments and minerals)

To take advantage of the above properties to modify some characteristics of the food according to market trends

To know the functionality and properties of the majority chemical components of food, as well as the minority vitamins, minerals, pigments and additives.

To developing strategies for food processing according to market trends

To manage to promote his aptitudes of leadership and management of teamwork.

6. Units / Contents

Unit 1: Importance of the subject framed in the Food Science and Technology Degree

Unit 2: Major components of Food

- **Unit 2.1** Carbohydrates
- **Unit 2.2** Fatty systems
- **Unit 2.3** Proteins. Enzymes in Food Technology

Unit 3: The water. Water activity. Distribution and stability of water in food

Unit 4: non enzymatic browning

Unit 5: Minor Components of Food

- **Unit 5.1** Vitamins
- **Unit 5.2** Minerals
- **Unit 5.3** Natural pigments

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	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	1.2	30	Y	N	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	0.8	20	Y	Y	
Workshops or seminars [ON-SITE]	Workshops and Seminars	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	0.2	5	Y	N	
In-class Debates and forums [ON-SITE]	Debates	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	0.06	1.5	Y	N	
Final test [ON-SITE]	Assessment tests	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	0.14	3.5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	2.9	72.5	Y	N	
Writing of reports or projects [OFF-SITE]	Workshops and Seminars	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	0.32	8	Y	N	
Practicum and practical activities report writing or preparation [OFF-SITE]	Self-study	CB02 E03 E05 E06 E08 E11 E22 E24 G01 G02 G04 G07 G09	0.38	9.5	Y	Y	
		Total:	**6**	**150**			
		Total credits of in-class work: 2.4					**Total class time hours: 60**
		Total credits of out of class work: 3.6					**Total hours of out of class work: 90**

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
Portfolio assessment	15.00%	0.00%	The activities will be available in the moodle application.
Laboratory sessions	15.00%	15.00%	A laboratory grade and a practical exam grade will be taken into account.
Test	70.00%	85.00%	A written exam will be taken on the dates proposed in the ordinary and extraordinary exams.
Total:	**100.00%**	**100.00%**	

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 information related to each of the activities will be available in the moodle computer application so that all students (both students who regularly attend class and those who do not take the continuous assessment) can be evaluated in each one. of the items. In any case, the ordinary and extraordinary official calls will be respected

Non-continuous evaluation:

The information related to each of the activities will be available in the moodle computer application so that all students (both students who regularly attend class and those who do not take the continuous assessment) can be evaluated in each one. of the items. In any case, the ordinary and extraordinary official calls will be respected

Specifications for the resit/retake exam:

The same criteria will be maintained as in the ordinary call.

Specifications for the second resit / retake exam:
It will be evaluated by means of a written test in which the knowledge of theory and practice of the subject will be evaluated with 85% of the grade corresponding to the theory and 15% to the practice. A minimum of 4/10 will be required in each of the parts and a grade equal to or higher than 5/10 applying the percentages.

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
Coultate, T. P.	Manual de química y bioquímica de los alimentos	Acribia		978-84-200-1089-2	2007	
Belitz, Hans-Dieter	Química de los alimentos	Acribia		84-200-0835-4	1997	
Fennema, Owen R.	Química de los alimentos	Acribia		84-200-0914-8	2000	
Lehninger, Albert L.	Principios de bioquímica	Omega		978-84-282-1486-5	2009	
Primo Yúfera, E.	Química de los alimentos	Síntesis		84-7738-451-7	1998	
Robinson, David	Bioquímica y valor nutritivo de los alimentos	Acribia		84-200-0699-8	1991	
	Tablas de composición de alimentos del CESNID = Taules de co	McGraw Hill-Interamericana Edicions Universit		84-8338-457-4 (Edici	2010	