

**1. General information****Course:** FOOD ANALYSIS AND COMPOSITION I**Type:** CORE COURSE**Degree:** 383 - UNDERGRADUATE DEGREE PROGRAMME IN FOOD SCIENCE AND TECHNOLOGY**Center:** 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY**Year:** 2**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 58313**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 22**Duration:** C2**Second language:** English**English Friendly:** Y**Bilingual:** N

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**2. Pre-Requisites**

The basic knowledge that students should possess, in general, and that will be very useful to them when taking the course, can be summarized in the following points:

- Structure and properties of organic compounds.
- Structure and properties of inorganic compounds.
- Structure and properties of food components.
- Basic knowledge of biochemistry.
- Material handling and the usual analysis techniques in the chemistry laboratory.

It is recommended that the students have studied the following subjects of 1st and 2nd Grade: General Chemistry, Extension of Chemistry, Biochemistry, Mathematics, Chemical Analysis, Organic Compounds and their Characterization, Structure and properties of the organic compounds.

Not established

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

Food Analysis and Composition I basically studies the physical-chemical composition, properties and quality criteria and specific analyses of the different food groups. Therefore, the course offers a general vision of the food and the physical-chemical analyses to be carried out within their quality control. Essential knowledge for a future graduate in Food Science and Technology

Some general contents of Bromatology I may overlap with those described for other subjects, which makes a good approach and coordination of them necessary. Thus, the subject Human Nutrition and Dietetics, which is compulsory for 12 credits, teaches about the nutritional value of different food components, which makes the inclusion of these aspects in the Bromatology programme unnecessary and redundant. Similarly, the teaching of the subject Sensory Analysis, which is compulsory for 6 credits, makes it unnecessary to include related subjects in the Bromatology programme. The course Structure and Properties of Food Components is closely related to Bromatology, but its focus is on the study of the groups of compounds that form foods in isolation (carbohydrates, proteins, lipids, ...), without reference to how they are distributed in different food groups.

**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.
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 To know the fundamentals of quality and traceability systems and be able to perform their deploy, as well as to evaluate and control the

E19	food quality
E22	To perform formation of staff in the food sector
G04	To develop the necessary skills of learning to undertake later studies with a high degree of autonomy.
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 acquire an appropriate knowledge of the chemical composition, physico-chemical properties, nutritional value and functional properties of different food products.

Handling of bibliography and specific databases related to the composition, the physico-chemical analysis and the quality control of food products, and acquisition of aptitude to elaborate and realize scientific and technical presentations.

Knowledge of the official methodology of analysis and quality control applied to food products

Acquisition of capacity for the interpretation of the results of food analyses, as well as for the detection of anomalies and adulterations, and for the solution of problems that could arise from an efficient quality control.

Knowledge of the official methodology of analysis and quality control applied to food products

Development of skills to carry out tasks in the analytical laboratory and to handle common technologies of physico-chemical analyses in the food laboratory, as well as the statistical procedures of data processing and sampling.

## 6. Units / Contents

### Unit 1: Introduction to food composition and analysis

### Unit 2: Milk and dairy products

### Unit 3: Meat and meat products

### Unit 4: Fish and derivatives

### Unit 5: Molluscs and crustaceans

### Unit 6: Eggs and Egg Products

### Unit 7: Legumes and derivatives

### Unit 8: Edible fats and oils

### Unit 9: Fruits, dry fruit and derivatives

### Unit 10: Vegetables and horticultural products

### Unit 11: Beverages: Water, alcoholic and non-alcoholic beverages

### Unit 12: Sugars, sweeteners and honey

### Unit 13: Stimulating foods

### Unit 14: Spices and condiments

## 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		1.24	31	Y	N	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities		0.8	20	Y	Y	
Workshops or seminars [ON-SITE]	Problem solving and exercises		0.16	4	Y	Y	
Group tutoring sessions [ON-SITE]	Group tutoring sessions		0.08	2	Y	N	
Final test [ON-SITE]	Assessment tests		0.12	3	Y	Y	
Practicum and practical activities report writing or preparation [OFF-SITE]	Self-study		0.24	6	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study		3.36	84	Y	N	
<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
Final test	70.00%	70.00%	The theory will be evaluated by a written exam.
Portfolio assessment	30.00%	30.00%	The laboratory practice will be evaluated by a written exam.
<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 percentages indicated for the theory and practical parts will be taken into account. In order to pass the course a minimum of 4/10 in both parts and an average grade equal or higher than 5/10 applying the percentages will be required.

**Non-continuous evaluation:**

The percentages indicated for the theory and practical parts will be taken into account. In order to pass the course a minimum of 4/10 in both parts and an average grade equal or higher than 5/10 applying the percentages will be required.

**Specifications for the resit/retake exam:**

The same as in the ordinary call. The proposed evaluation dates will be respected

**Specifications for the second resit / retake exam:**

The percentages indicated for the theory and practical parts will be taken into account. In order to pass the course a minimum of 4/10 in both parts and an average grade equal or higher than 5/10 applying the percentages will be required.

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	City	ISBN	Year	Description
Robinson, D. S.	Bioquímica y valor nutritivo de los alimentos	Acribia		84-200-0699-8	1991	
Senser, F., Scher, H.	Tablas de composición de alimentos. El pequeño "SouciFachmann-Kraut"	Acribia			1998	
Vollmer, G., Josst, G., Schenker, D., Sturm, W., Vrenden, N., Primo Yúfera, E.	Elementos de bromatología descriptiva	Acribia		84-200-0877-X	1995	
Coultate, T. P.	Manual de química y bioquímica de los alimentos	Acribia		978-84-200-189-2	2007	
Moreiras, Carbajal, Cabrera, Cuadrado	Tablas de composición de alimentos	Pirámide		978-84-368-2273-1	2009	
Vaclavik, V. A.	Fundamentos de ciencia de los alimentos	Acribia		84-200-0976-8	2002	
Belitz, H.D., Grosch, W.	Química de los Alimentos	Acribia		84-200-0835-4	1997	
Astiasarán, I., Martínez, J.A.	Alimentos : composición y propiedades	McGraw-Hill		84-486-0305-2	2000	
Belitz, Hans-Dieter	Química de los alimentos	Acribia		978-84-200-1162-2	2011	
España. Leyes, etc. alimentarias	Legislación alimentaria: Código alimentario español y sus di	Tecnos		84-309-4314-5	2006	
Madrid, A.	Métodos oficiales de análisis de alimentos	Mundi-Prensa			1994	
Madrid, A., Madrid, J.	Normas de calidad de alimentos y bebidas	AMV Ediciones Mundi-Prensa		84-7114-852-8	2001	
Matissek, R., Schnepel, F.M., Steiner, G.	Análisis de los alimentos : fundamentos, métodos, aplicación	Acribia		84-200-0850-8	1998	
Ministerio de Sanidad y Consumo	Tablas de composición de alimentos españoles	Ministerio de Sanidad y Consumo,		84-7670-443-7	1995	