



Universitat de Lleida

DEGREE CURRICULUM **FOOD PROCESSING**

Coordination: SOLIVA FORTUNY, ROBERT CARLES

Academic year 2023-24

Subject's general information

Subject name	FOOD PROCESSING			
Code	100609			
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Human Nutrition and Dietetics	2	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	1.6	1.4	3
	Number of groups	3	2	1
Coordination	SOLIVA FORTUNY, ROBERT CARLES			
Department	FOOD TECHNOLOGY, ENGINEERING AND SCIENCE			
Teaching load distribution between lectures and independent student work	On-site hours 60 - Lectures 30 - Practice and tutorials 16 - Seminars 14 Off-site hours 90			
Important information on data processing	Consult this link for more information.			
Language	Catalan			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
FARRÀS MORAGUES, NÚRIA	nuria.farras@udl.cat	1,5	
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Subject's extra information

L'assignatura figura en el segon curs del pla d'estudis del Grau en Nutrició Humana i Dietètica, amb caràcter troncal. La matèria pretén dotar a l'estudiant del Grau dels coneixements sobre els processos tecnològics implicats en la transformació, i conservació dels aliments, permetent-los diferenciar els diferents efectes positius i negatius que aquests processos tenen sobre la seva composició i valor nutritiu, de forma que puguin aplicar-los en la seva futura activitat professional. Amb aquesta finalitat, s'estudiaran les diferents formes de transformació d'aliments, tant a nivell industrial com domèstic, amb una especial atenció als processos d'elaboració d'aliments per a col·lectivitats. Es pretén que l'estudiant entengui les repercussions que el processat i manipulació dels aliments presenten quan es vol assolir un determinat objectiu en el seu àmbit professional.

Learning objectives

- To know the principles of the most significant technologies for food processing, preservation and storage (C1, C2).
- To analyze food transformation processes, from industrial processing to culinary preparation techniques (C1, C2, C4).
- To identify the factors affecting food safety, organoleptical and nutritional quality involved in food processes, as well as the main ways for assessment and control to be applied (C1, C2).
- To critically evaluate the use of raw materials or substitutive ingredients, as well as the associated implications, during processing and culinary treatments (C1, C2, C4).
- To evaluate the positive and negative effects of food processing on the composition, physicochemical and organoleptical properties (C1, C2, C3).
- To discuss the incidence of processing on the nutritional value of food products and nutrients bioavailability (C1, C2, C4)
- To justify the application of certain processes and/or cooking procedures to achieve specific gastronomic,

nutritive or dietetic targets (C2, C4)

- To use the bases of planning, development and evaluation of sensory tests with consumers (C3).
- To design food products of interest in the field of nutrition and dietetics achieved through the integration of learning (C1, C2, C3).
- To properly interpret legislation and applicable regulations within the field of food processing and cooking treatments (C1, C2).

Competences

Specific skills

CE10 Knowing the basic processes in the elaboration, transformation and preservation of the main foods.

CE11 Knowing and applying the fundamentals of sensory analysis of food products.

CE14 Knowing the culinary techniques to optimize the organoleptic and nutritional characteristics of food, with respect to traditional gastronomy.

General skills.

CG4. Communicate effectively, both orally and in writing, with people, health professionals or industry and the media, knowing how to use information and communication technologies, especially those related to nutrition and lifestyle habits.

CG5. Know, critically evaluate and know how to use and apply the sources of information related to nutrition, food, lifestyles and health aspects.

Basic skills

CB2 The students have to know how to apply their knowledge to their work or vocation in a professional manner and possess the competencies and the skills that are usually demonstrated through the development and defense of arguments and problem solving within their field of study.

CB3 That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

CB4 The students have to be able to transmit information, ideas, problems and solutions to both specialized and non-specialized audiences.

CB5 The students have to developed those learning skills necessary to undertake further studies with a high degree of proficiency undertaking further studies with a high degree of autonomy.

Transversal Competences of the UdL

CT1 To have a correct oral and written expression

CT3 Mastering ICT

CT4 Acquire basic knowledge of entrepreneurship and professional environments.

CT5. To acquire essential notions of scientific thinking.

Subject contents

1. **Introduction to food processing.**
2. **Preparative operations and transformation of raw materials.**
3. **Food preservation by thermal means.**
4. **Novel technologies as an alternative to conventional thermal treatments.**
5. **Preservation through water activity reduction.**
6. **Use of chemical substances**
7. **Preservation using low temperatures**
8. **Modified atmosphere packaging**
9. **Introduction to culinary cooking**
10. **Boiling and steaming**
11. **Frying**
12. **Grilling and roasting**
13. **Other cooking techniques**

Methodology

Lectures

These will be taught with the whole group. The aim is to provide a general view of the contents specifically related with the course with emphasis on skills that refer to food processing.

Seminars

Each student is assigned to a seminar group. Seminars will consist in the analysis of scientific papers and/or search of information that will complement the contents developed in lectures. Participation and discussion will be encouraged.

Tutorials

Advisory meetings will be scheduled in small groups with the aim of preparing the course project.

Lab practice

Assistance to this activity is compulsory. Lab practice will be carried out in groups of 3-4 students and will take place in the pilot plant of the food technology department.

Course project

It will be proposed to small groups. Each group will prepare a brief oral exposition and a written document and will have to attend to the scheduled meetings in order to follow up the development of the work.

Due to the special circumstances derived from sanitary crisis caused by the COVID-19, this subject will be taught through on-site and off-site classes. As long as circumstances allow it, exams, seminars, practical activities and some plenary lectures will be carried out as on-site activities. If circumstances require a modification in the degree of on-site sessions, this will be informed in due time.

Development plan

On-site (40%)

Off-site (60%)

Evaluation

The evaluation will consist of the weighted average of the following activities:

1. Written test I (individual exam): 35%
2. Written test II (individual exam): 35%
3. Laboratory practices: 15%

Practices will be done in groups. The presentation of a report will be requested, where the student's discussion of the results obtained will be particularly valued.

This mark will be obtained from the evaluation of the report, considering both formal aspects (1/10), documentation (2/10) and content discussion (6/10).

This grade may be modified according to the teacher's evaluation of the student during the development of the internship.

4. Work: 10%

The teaching staff will provide detailed guidelines for their completion during the development of the course. Guidelines for its development will be provided as well as a list of possible topics.

Two thirds of the grade of the work will correspond to the evaluation of the written report. Another third will be obtained from assessing the presentation of the work done in class and the tutored follow-up of the tasks.

5. Individual exercises: 5%

Solving problems and exercises raised during the course.

Assessment Blocks:

Block A: Exam I (35% of the grade)

Block B: Exam II (35% of the grade)

Block C: Group laboratory exercises (15% of the grade)

Block D: Subject work and class activities (10% of the grade)

Comments

In order to pass the subject, a minimum average grade of 5.0 is required in the written assessment tests (Blocks A and B) and a minimum grade for each of these two blocks equal to or higher than 4.0. Otherwise, it will be necessary to apply for recovery of any suspended block (<5) or, voluntarily, of both blocks.

Non-attendance at any of the practices without accredited justification may result in a penalty of up to 1 point in the subject's overall grade.

Evaluation mode

The assessment is continuous, weighting the grades obtained in the different blocks (A, B, C and D).

If the student adheres to the alternative assessment, this will consist of taking the two written tests planned on the dates listed in the subject's calendar. This qualification will account for 80% of the overall grade. In addition, a coursework will be requested, which will weigh 10% of the subject and a written activity based on laboratory practices, which will weigh the remaining 10%.

Bibliography

a. Basic references

- BRENNAN, J. G. (2006). Manual de procesado de los alimentos. Ed. Acribia. Zaragoza.
- CHEFTEL, J.C. (2000). Introducción a la bioquímica y tecnología de los alimentos. Vol. I i II. Editorial Acribia, Zaragoza.
- COENDERS, A. (1996) Química Culinaria. Ed. Acribia. Zaragoza.
- FELLOWS, P. (2007) Tecnología del procesado de los alimentos. Editorial Acribia, Zaragoza.
- JEANTET, R.; GROGUENEC, T.; SCHUCK, P.; BRULÉ, G. (2010). Ciencia de los alimentos. Volumes. 1 i 2. Ed. Acribia. Zaragoza.
- MÉRIDA, J. (2014). PROCESADO DE ALIMENTOS. AMV Ediciones. Madrid.
- ORDÓÑEZ PEREDA, J.A. (1998). Tecnología de los alimentos. Vol. I i II, Síntesis, D. L., Madrid.

b. Other references:

- BELLO, J. (1998) Ciencia y Tecnología Culinaria. Ed. Díaz de Santos. Madrid.
- CANDELA, M. ASTIASARAM, I. (1999) Alimentos: composición y propiedades. Ed. Eurograf. Pamplona.
- CASP VANACLOCHA, A. (2003) Procesos de conservación de alimentos. Ed. Mundi-Prensa, Madrid.
- VACLAVIK, V.A. (1998) Fundamentos de ciencia de los alimentos. Ed. Acribia, Zaragoza.
- HODGES CA. (1994) Culinary nutrition for food professionals. 2ª ed. Van Nostrand Reinhold. New York.
- KOTSCHEVAR LH. (1988) Standards, Principles and Techniques in quantity food production. 4ª ed. Van Nostrand Reinhold. Nova York.