



Universitat de Lleida

DEGREE CURRICULUM **BROMATOLOGY**

Coordination: PIQUE FERRE, M. TERESA

Academic year 2023-24

Subject's general information

Subject name	BROMATOLOGY			
Code	100638			
Semester	1st 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)	9			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	1.8	2.7	4.5
	Number of groups	3	2	1
Coordination	PIQUE FERRE, M. TERESA			
Department	FOOD TECHNOLOGY, ENGINEERING AND SCIENCE			
Important information on data processing	Consult this link for more information.			
Language	Català			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PIQUE FERRE, M. TERESA	mariateresa.pique@udl.cat	15,3	

Subject's extra information

Bromatology is the science dedicated to the study of food, its components and its characteristics. In this course the student acquires knowledge about the characteristics of the different food groups, the raw materials and the products made in the food industry. These foods are studied from different perspectives: composition, structure, properties, nutritional value, toxicological aspects, conservation, transformation, etc., so that the student can use this knowledge as tools with which to apply the criteria and recommendations of the Nutrition and Dietetics.

Learning objectives

Competence: Identify and classify food

1. Differentiate the concepts of Food, Bromatology, Food Technology, Nutrition and Dietetics.
2. Classify foods according to different criteria.
3. Understand food legislation.

Competence: Knowing its composition

4. Recognize the composition, properties and nutritional value of different foods.
5. Describe the physical-chemical properties, the organoleptic characteristics, the nutritional value and the quality of the food.
6. Describe the changes that food undergoes as a result of technological and culinary processes.
7. Describe food production and recovery of food waste.
8. Carry out the physical-chemical and organoleptic analysis of food.
9. Express and communicate the importance of food components in the field of health.

Competency: Interpret databases and composition tables

10. Distinguish between databases and food composition tables.

11. Carry out the computer search in food composition databases.
12. Compare and assess search results in databases and composition tables.
13. Determine the nutritional value of a food using bases and composition tables.
14. Prepare reports on the composition and nutritional value of a food.

Competences

Specific Competences:

CE8 Identify and classify food, food products and food ingredients.

CE9 Know its chemical composition, its physical-chemical properties, its nutritional value, its bioavailability, its organoleptic characteristics and the changes it undergoes as a result of technological and culinary processes.

CE12 Interpret and manage databases and food composition tables.

General Competencies:

CG3. Recognize one's own limitations and the need to maintain and update professional competence, giving special importance to autonomous and continuous learning of new knowledge, products and techniques in nutrition and food, as well as motivation for quality.

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

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

Basic Competences:

CB2 That students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.

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

CB4 That students can transmit information, ideas, problems and solutions to both specialized and non-specialized audiences.

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

Transversal Competences of the UdL:

CT1 Have correct oral and written expression.

CT3 Master ICT.

CT5. Acquire essential notions of scientific thought.

Subject contents

UNIT 1. Introduction

Concept of food, bromatology, nutrition and dietetics. Evolution in the history of bromatological science.

UNIT 2. Food

Food classification. Food components. Nutritional value and caloric value of food. Alteration of food. Food quality.

UNIT 3. Basic foods of plant origin

Cereals and derivatives. Vegetables and derivatives. Legumes. Fruits, nuts and derivatives.

UNIT 4. Basic foods of animal origin

Milk and milk products. Eggs and derivatives. Meat and meat products. Fish, seafood and derivatives.

UNIT 5. Complementary foods

Edible fats and oils. Natural sweeteners and derivatives. Water and non-alcoholic beverages. Alcoholic drinks. Stimulant food products. Condiments and spices.

UNIT 6. Special foods and dietary supplements

Infant food. Foods for weight control. Dietary supplements

UNIT 7. New foods

Transgenic foods. Functional foods.

UNIT 8. Food modifications

Properties of bromatological interest. Technological modifications and alterations of proteins, carbohydrates and lipids. Stability of vitamins.

Methodology

Master classes

They will be carried out with all the students in the classroom. Their purpose is to give an overview of the educational content related to the specific knowledge of the subject, highlighting those aspects that are related to the acquisition of skills related to food science.

Directed works

Carrying out a compulsory task, in groups of 3-4 students:

- Search for information on food components and their scientific interest in the field of health.

Seminars

The seminars are compulsory and must be carried out in the group that corresponds to each student. Activities will be carried out that provide practical knowledge on some of the topics developed in the master classes.

Seminar 1. Observation of packaging and interpretation of the labeling of food products

Seminar 2. Use of food additives

Seminar 3. Recovery of by-products and food waste

Seminar 4. Current status in the marketing of dietetic foods

Seminar 5. Regulatory status of functional foods, organic foods and transgenic foods

Seminar 6. Applications of the physicochemical properties of proteins, carbohydrates and lipids

Seminar 7. Stability of vitamins

Seminar 8. Bioavailability of bioactive components of food

Computer classroom activities

In the Computer Classroom Seminar, the following will be carried out:

- Search in food databases
- Interpretation and management of databases and food composition tables

Laboratory practices

The laboratory and pilot plant practices are compulsory and will be carried out in groups of 15 students who will be subdivided into groups of 3 students. Practice sessions will be held for a week. Active participation in practice sessions is considered essential for learning the subject. Activities related to the preparation of food in a pilot plant, carrying out quality controls of raw materials and processed products will be carried out, so that work will be carried out:

- Physicochemical analysis of food
- Formation of food gels and emulsions
- Oxidation and browning
- Organoleptic analysis of food
- Determination of the nutritional value of a food
- Preparation of reports

Tutorials

Seminar-Tutoring. It will be carried out in groups of 15-20 students and will take place after the laboratory practices. Its purpose will be to clarify doubts about the elaboration of laboratory practice reports and the performance of the work.

Evaluation

La evaluación del aprendizaje es continuada y tanto el contenido teórico como el contenido práctico tienen un peso del 50% sobre la nota final de la asignatura. Para aprobar la asignatura será necesario aprobar por separado el contenido teórico y práctico.

La **evaluación continua** del aprendizaje se realizará a partir de las actividades de evaluación que se organizan en los bloques siguientes:

Bloque A: Exámenes o pruebas escritas de teoría (50%) - Se realizarán 2 exámenes parciales con 25 preguntas sobre la parte teórica. Este tipo de evaluación corresponderá al 50% de la nota final. Se valorará la expresión, la claridad y la corrección en el escrito. Cada uno de los exámenes parciales se aprueba con una nota igual o superior a 5, si no se consigue esta nota será necesario hacer la recuperación de los parciales no aprobados. En el examen de recuperación la puntuación máxima que se puede conseguir es de aprobado (5.0).

Bloque B: Prácticas en el laboratorio (20%) - La evaluación de las prácticas de laboratorio corresponde al 20% de la nota final. Se valorará la asistencia activa a las sesiones de prácticas (10%) y la elaboración del informe de prácticas individual (10%). La realización de estas prácticas es obligatoria y si no se realizan y no se presentan los informes correspondientes no se aprueba este bloque.

Bloque C: Actividades en aula (20%) - La participación activa en los seminarios y realización de las actividades programadas supondrá el 20% de la nota final de la asignatura. La realización de estas actividades es obligatoria y si no se realizan y no se presentan los informes correspondientes no se aprueba este bloque.

Bloque D: Trabajo (10%) - La realización del trabajo y exposición oral representará el 10% de la nota final. Se valorará la expresión, la claridad y la corrección en el escrito y en la exposición oral. La realización de este trabajo es obligatoria y si no se realiza no se aprueba este bloque.

En caso de acogerse a la **evaluación alternativa**, esta consistirá en:

- En la fecha correspondiente al último examen parcial de la evaluación continua se realizará un examen con 50 preguntas sobre la totalidad del contenido teórico de la asignatura. Este tipo de evaluación corresponderá al 60% de la nota final. Se valorará la expresión, la claridad y la corrección en el escrito. Este examen se aprueba con una nota igual o superior a 5, y si no se consigue esta nota será necesario hacer la recuperación del examen. En el examen de recuperación la puntuación máxima que se puede conseguir es de aprobado (5.0),

- La participación activa en las sesiones de prácticas se considera fundamental para el aprendizaje de la asignatura. La evaluación de las prácticas de laboratorio corresponde al 20% de la nota final. Se valorará la asistencia activa a las sesiones de prácticas (10%) y la elaboración del informe de prácticas individual (10%). La realización de estas prácticas es obligatoria y si no se realizan y no se presentan los informes correspondientes no se aprueba este bloque.

- Se realizarán dos trabajos individuales que corresponderán al 20% de la nota final de la asignatura. Un trabajo individual relacionado con el contenido de los seminarios (10% de la nota final) y el trabajo dirigido que se realizará sin la exposición oral (10% de la nota final). Será necesario obtener la nota mínima de 5,0 en este bloque para aprobar este bloque y para superar la asignatura. Se valorará la expresión, la claridad y la corrección en el escrito. La realización de estos trabajos es obligatoria y si no se realizan no se aprueba este bloque.

OBSERVATIONS: If for health reasons, or other unforeseen circumstances, face-to-face sessions cannot be held, they will be held virtually synchronously and the evaluation system could be modified.

Bibliography

Books

- Astiasaran, I.; Martinez, J.A. Alimentos. Composición y propiedades. Editorial MacGraw Hill Interamericana. 2003.
- Bello, J. Ciencia bromatológica. Principios generales de los alimentos. Editorial Díaz de Santos. Barcelona. 2000.
- Código Alimentario Español y disposiciones complementarias. Editorial Tecnos. Madrid. 2002.
- Coultate, T.P. Manual de química y bioquímica de los alimentos. Editorial Acribia. Zaragoza. 2007.
- Fennema, O.R. Química de los Alimentos. Editorial Acribia. Zaragoza. 2010.
- Kuklinski, C. Nutrición y bromatología. Editorial Omega. Barcelona. 2003.
- Salinas, R.D. i al. Alimentos y nutrición: introducción a la bromatología. Editorial El Ateneo. Buenos Aires. 2000.