



Universitat de Lleida

DEGREE CURRICULUM
**FOOD ADDITIVES AND
FUNCTIONAL FOODS**

Coordination: BALCELLS FLUVIA, MERCE

Academic year 2023-24

Subject's general information

Subject name	FOOD ADDITIVES AND FUNCTIONAL FOODS			
Code	102250			
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Food Science and Technology	3	OPTIONAL	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	1.5	1.8	2.7
	Number of groups	3	1	1
Coordination	BALCELLS FLUVIA, MERCE			
Department	ENVIRONMENT AND SOIL SCIENCES AND CHEMISTRY			
Teaching load distribution between lectures and independent student work	As an estimation, each hour in class requires about one and half additional study hours.			
Important information on data processing	Consult this link for more information.			
Language	Catalan			
Distribution of credits	4.2 credits - class 0.3 credits - informatic class 1.5 credits - lab			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
BALCELLS FLUVIA, MERCE	merce.balcells@udl.cat	4,5	
GIL MESTRES, ADRIA	adria.gil@udl.cat	4	
LODEIRO FERNÁNDEZ, PABLO MANUEL	pablo.lodeiro@udl.cat	,5	

Subject's extra information

The subject has continuous evaluation. The final grade comes from different activities that are carried out throughout the course (attendance and elaboration of a report of practices, elaboration of different works or exercises throughout the course and its eventual presentation in class, and other activities of evaluation -test and exam-). Attendance to lab sessions is mandatory.

In case of special circumstances, such as a new confinement period, the methodology of the subject will be adapted to the necessary conditions and, if applicable, also the evaluation methodology.

Learning objectives

The student must be able to: (exemple)

Know the main groups of additives used in food: its characteristics, behavior, applications, issues related to the safe use of them,

Know how the properties of food additives relate to their food application.

Know what are functional foods, what functional foods are in the market, how they are obtained, what special considerations must taken for each of them,

Know how to use the theoretical information to understand the function of the different functional ingredients in foods

Subject contents

- 1.- Introduction.
- 2.- Risk evaluation in the use of food additives. Legal aspects of the use of food additives.
- 3.- Preservatives
- 4.- Antioxidants
- 5.- Water activity depressing additives
- 6.- Colorants.
- 7.- Sweeteners.
- 8.- Flavorings and flavor enhancers.
- 9.- Thickeners and gelling additives.
- 10.- Emulsifiers.

- 11.- Anti-caking agents.
- 12.- Functional foods. Definition, legal aspects.
- 13.- Security and effectiveness guarantee of functional foods.
- 14.- Supplements for nutritional purposes in foods.
- 15.- Prebiotics, probiotics and symbiotics.
- 16.- Dietary fiber.
- 17.- Antioxidants and phytochemicals.
- 18.- Functional lipids.
- 19.- Amino acid-based compounds.
- 20.- Sugar substitutes.
- 21.- Fat substitutes and replacers.

Practical activities

- 1.- Vegetable pigments. Stability of natural dyes.
- 2.- Food hydrocolloids: alginates, carrageenans, galactomannans, pectins.
- 3.- Emulsifiers. Evaluation of emulsifying capacity.
- 4.- Food supplements. Evaluation of the stability of ascorbic acid.

Methodology

Activity	Description	On class dedication (hours)	Student dedication (hours)	Evaluation (hours)	Total Hours	ECTS
Class lessons	Class	27	27	2	56	2,2
Problems solving	Class	18	24	2	38	1,5
Laboratory	Lab practice	15	24		39	1,6
Other	Individual report		9	2	17	0,7
Total		60	84	6	150	6

Evaluation

Activity	Evaluation activity	Number	Marks (%)
Class lessons	Written exam	1	20
Problem-solving	Short reports		20
Laboratori	Lab report	1	25
Activitats dirigides	Report	1	35
Total			100

Bibliography

Food additives. R.J.Taylor. John Wiley and Sons, New York (1980).

Food additives. A.L.Branen, P.M. Davidson, S.Salminen. Marcel Dekker (1990).

Aditivos y auxiliares de fabricación en las industrias agroalimentarias. J.L.Multon, coord. Ed. Acribia (2000).

Mechanisms of action of food preservation procedures. G. W. Gould. Elsevier Applied Science London (1989).

Food antioxidants. B.J.F. Hudson. Elsevier (1990). Natural colours for food and other uses. Applied Science Essex Counsell J.N. ed. (1981).

Food emulsions. Principles, Practice and Techniques. D.J.McClements CRC Press (1999)

Hydrocolloid applications. A. Nussinovitch. Blackie Academic and Professional (1997)

Essentials of functional foods M.K.Schmidl, T.P.Labuza Aspen Publ. (2000)

Guide to functional food ingredients J.Young ed.. Leatherhead Publ. (2001)