

FOOD ADDITIVES AND THEIR HEALTH IMPLICATIONS

Degree in Human Nutrition and Dietetics

Code: 80400

Modulus 7

Subject: Supplementary education

Type of subject: Optative

Aimed at: Third- and Fourth-Year Students

Department: Nutrition and Food Science (Food Science Teaching Unit)

Credits: 3 ECTS

Teaching period: First semester (September to December 2026)

Start date: September 10, 2026

Timetable: Thursday from 12:30 p.m. to 2:30 p.m.

Place: Faculty of Medicine

Number of students: 40

LECTURES

Coordinator: Prof. Dr. Inmaculada Mateos-Aparicio

Email: inmateos@ucm.es

Professors: Prof. Dra. Patricia Morales Gómez (patmoral@ucm.es); Prof. Dra. Inmaculada Mateos-Aparicio (inmateos@ucm.es)

BRIEF DESCRIPTION

Due to the importance in the food industry, and its implications in food safety, the objective of the study of additives and similar substances is to deepen in the knowledge of the different groups thereof, physical-chemical and technological properties, toxicological implications, safety, needs of these substances in the food field, forms of employment and regulations.

SKILLS

They are those corresponding to the Module and Subject to which this type of subject belongs.

General skills

C.G.8.1.

Specific skills

CE.M7.1

CE.M7.2

CE.M7.3

CE.M7.4

CE.M7.5

OBJETIVES

- Understanding the importance of food additives and similar substances, and be able to justify the need for these substances in the food sector.

- Evaluating current legislation, verifying compliance with the requirements established for food and its processing.
- Assessing the importance of toxicological control of food additives.
- To know how to explain the implications of additives, from a point of view in the area of food, and at health level.
- Being able to take a rational and justified choice among the different groups of authorised additives in the food sector.

TOPICS

Topic 1. Intentionally added substances. Food additives and others. Introduction. Definition and classification. Importance of additives in the food sector.

Topic 2. Regulatory and legislative aspects of food additives. National and international legislation.

Topic 3. Toxicological evaluation of food additives. Safety and criteria for their use.

Topic 4. Preservative additives. Main groups. Characteristics, efficacy, and action mechanism.

Topic 5. Antioxidant additives. Food oxidation process. Study of the different types and main applications.

Topic 6. Colour in food: colorants additives.

Topic 7. The taste of food: sweetener additives.

Topic 8. The texture of food: thickeners, gelling agents, and emulsifiers.

Topic 9. The aroma in food: aromas and flavor enhancers.

TEACHING METHODOLOGY

The **classes** will introduce the student to the fundamental theoretical contents of the subject. At the beginning of each topic, the aspects to be discussed and the main objectives will be exposed. To facilitate the follow-up work by the students, teaching material will be provided on the Virtual Campus.

In the **seminars**, current and interesting topics in the area of food additives (i.e. legislation, toxicology) will be presented, improving their knowledge with some practical cases of specific groups of food additives (i.e. sweeteners, colorants, etc.).

To deepen in the knowledge of the fundamental aspects of food additives, individual and collective work will be proposed to promote their critical opinion (i.e. activities such as debate).

The professor will schedule individual or group tutorials, in order to guide and solve any doubts. These tutorials will be carried out in person, and, exceptionally, virtually.

The Virtual Campus will be used to allow fluid communication between teachers and students, and as an instrument to make available to students the necessary teaching material to facilitate the student learning.

EVALUATION CRITERIA

- Final exam of the subject will consist of a written assessment. To pass this exam, it will be necessary to obtain a minimum score of 5 out of 10.

- In case of having 30% or more of questions valued as zero or not answered, regardless of the total sum, the exam will not be approved.

- The activities carried out in the seminars and other proposed activities will also be taken into account in the qualification.

- The final mark will be made up of: 50% for that obtained in the final theoretical exam, 15% for that obtained in the debate, 35% for activities and seminars.

REFERENCES

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- Branen, A.; Larry; Davidson, Michael; Salminen, Seppo y Thorngate, John (2002), Food Additives. Marcel Dekker, Inc. New York-Basel.
- Belitz, H.D. y Grosch, W. (1999), Química de los alimentos, Ed. Acribia, Zaragoza.
- Fennema, O.R. (Ed) (1993), Química de los alimentos, Ed. Acribia, Zaragoza.
- Legislación-Aditivos: Reglamentos CE nº 1333/2008; UE nº1129/2011. Aromas: Reglamento CE nº 1334/2008. Enzimas: Reglamento CE 1332/2008.
- Mateos-Aparicio, I. (2017), Aditivos Alimentarios, Dextra Editorial, Madrid
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- Multon, J.L. (1999), "Aditivos y auxiliares de fabricación en las industrias agroalimentarias", Ed. Acribia, Zaragoza.
- Pokorny, Jan; Yanishelieva, Nedyalte; Gordon, Michael (2005), Antioxidantes de los alimentos. Aplicaciones prácticas, Ed. Acribia, Zaragoza.
- Shibamoto, Takayki y Bjeldanes, Leonard (1996), "Introducción a la toxicología de los alimentos", Ed. Acribia, Zaragoza.

Approved by Department Board, on April 29th, 2026