



PhD in Advances in Food Science and Biotechnology

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<https://www.ubu.es/doctorado-en-avances-en-ciencia-y-biotecnologia-alimentarias>

Doctorate School (Administration and Services Building. First Floor, 1 Don Juan de Austria Street, Burgos)

PRESENTATION

The Doctoral Programme in Advances in Food Science and Biotechnology (BIOTECAL) focuses on research in advanced techniques in food safety, biotechnology and food science, aiming to develop safe, nutritious, healthy, and high-quality foods through eco-efficient and sustainable processes. Adapted to Spanish legislation and verified by the Spanish Council of Universities, it leads to the official title of Doctor.

The programme is mainly delivered by the Department of Biotechnology and Food Science at the Universidad de Burgos and offers direct access to graduates of the [Master's Degree in Food Safety and Biotechnology](#). It trains researchers capable of addressing the growing societal and industrial demands for safer, more efficient, and sustainable food production.

In Castilla y León – particularly in Burgos – the agri-food sector represents a key part of the regional industrial structure, reinforcing the University of Burgos's commitment to providing undergraduate, master's, and doctoral programmes that foster innovation and development in this strategic field.

GENERAL CHARACTERISTICS OF THE DEGREE:

- **Doctoral School:** Doctoral School of the Universidad de Burgos
- **Degree Title:** Doctor awarded by the Universidad de Burgos
- **Teaching Centre:** Faculty of Science
- **Languages of Instruction:** Spanish as the main language, with English used in certain courses and activities

OBJECTIVES

GENERAL OBJECTIVE

To train researchers and professionals capable of studying the nature of food, the causes of its deterioration, the fundamental principles of its processing, and the improvement of food products for public consumption. The aim is to propose and design the most appropriate methods for the preservation, transformation, packaging, distribution, and use of food, ensuring high sensory quality, safety, nutritional value, healthiness, and compliance with new consumption habits and current legislation.

This objective is pursued through the optimal use of natural resources and the valorisation of by-products, the minimisation of pollutants and proper management of industrial waste, while promoting an ethical commitment to human rights and environmental sustainability.

SPECIFIC OBJECTIVES

The academic training of PhD graduates from the Doctoral Programme in Advances in Food Science and Biotechnology at the University of Burgos is structured around the following professional profiles:

- Healthy eating and food safety
- Quality management and control of processes and products
- Food processing, product development, and innovation

The programme also pursues the following specific objectives:

- To develop students' ability to conduct research in the field of food science and technology.
- To provide up-to-date knowledge on recent advances in food science and technology research.
- To enable students to acquire practical and psychomotor skills in experimental techniques and working methods commonly used in research and technology transfer within the agri-food sector.
- To provide specialisation in advanced analytical and processing techniques applied in the development of their doctoral theses.
- To promote interaction with members of other research groups active in food science and technology.
- To familiarise students with the research resources available across the participating research groups within the programme.



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ADMISSION CRITERIA

GENERAL CRITERIA

The general criteria are those established in Spanish legislation regulating official doctoral studies.

SPECIFIC CRITERIA

Direct access to the doctoral programme:

Holders of the Master's Degree in Food Safety and Biotechnology.

The same consideration shall be given to holders of any of the qualifications that granted access to the predecessor of the current doctoral programme, namely the Diploma de Estudios Avanzados (DEA), obtained in accordance with Royal Decree 778/1998, and the Suficiencia Investigadora, regulated by Royal Decree 185/1985.

Holders of a qualification providing training equivalent to that referred to in the previous paragraph. In all cases, the equivalence of the training submitted must be approved by the Academic Committee of the doctoral programme

Access with complementary training:

Holders of a Master's degree in areas related to the Doctoral Programme in Advances in Food Science and Biotechnology, which includes at least 16 ECTS credits in research methodology and training, and the completion of a research-oriented master's dissertation or equivalent. The Academic Committee shall determine which degrees are deemed related, in view of the merits submitted by the applicant. Among the criteria that may be applied are that at least 25% of the subjects taken are related to those taught in the Master's Degree in Food Safety and Biotechnology, as well as the type of undergraduate degree held by the candidate. In all cases, the equivalence of the accredited training must be approved by the Academic Committee of the doctoral programme.

Other graduates who, while meeting the general access requirements for doctoral studies, are not covered by the previous points.

In the case of foreign graduates whose mother tongue is not Spanish, a B2 (or equivalent) level of Spanish must be certified, or an official Spanish language course must be taken during the first 18 months of the doctorate in order to reach this level.

If the number of pre-registered applicants exceeds the number of places available, the Academic Committee of the doctoral programme will make a selection on the basis of the following criteria and weightings:

- Degree giving access to the doctoral programme: 40%
- Academic record: 40%
- Professional experience: 20%

RESEARCH LINES

The research lines of the programme focus on the food industry and its products, ranging from the analysis and quality control of foods and raw materials to various processes for the production of foods or their constituents, and the development of separation and preservation technologies, new product design, wastewater treatment, and the assessment of the health-related properties of foods.

The five research lines of the Doctoral Programme in Advances in Food Science and Biotechnology and their main associated research groups are outlined below. The list of academic staff responsible for supervising and directing doctoral theses can be consulted in the section on [professorado](#).

RESEARCH LINES:

1. Agri-food, industrial, environmental biotechnology and applications to health
2. Food design, processing, characterisation and preservation
3. Food, nutrition and health
4. Chemometrics and process analytical technology
5. Microbiology and food safety



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RESEARCH GROUPS:

- Food, Technology and Health ([ALTESA](#) and [UIC 073](#))
- Biochemistry and Biotechnology ([BBT](#) and [UIC 357](#))
- Industrial and Environmental Biotechnology ([BIOIND](#) and [UIC 128](#))
- Honey Quality, Typification and Ageing ([MIEL](#))
- One Health Microbiology ([OHM](#) and [UIC 271](#))
- Nutrition and Dietetics ([NUTRICION](#))
- Chemometrics and Qualimetrics ([Q&C](#) and [UIC 237](#))
- Food Technology ([TECNOFOOD](#) and [UIC 073](#))

PROFESSIONAL OUTCOMES

Third-cycle studies in Advances in Food Science and Biotechnology enable PhD graduates to pursue careers in research within the field of Food Science and Biotechnology. A substantial portion of research in this domain is conducted at universities, the Spanish National Research Council (CSIC), technological centres, and food industry companies.

The doctoral degree also facilitates access to various university teaching positions and state-funded research programmes, including the Ramón y Cajal, Juan de la Cierva, and Torres Quevedo programmes.

Furthermore, doctoral studies enhance the training of professionals across all sectors of the food industry (production, management, new product development, quality control, design and marketing, etc.) and in public administration at national, regional, and local levels, particularly in the areas of agriculture, health, industry, consumer affairs, and education.

