5156 Molecular Biology
ECTS credits: 6  Semester: 1

Teaching aims

The aim is to further the students' understanding of Biochemistry and particularly its links with Molecular Biology. Students will also acquire skills and knowledge related to the corresponding section. The following objectives have been identified:

1. Training aims (attitudes): Allow the student to understand the importance of the foundations and applications of molecular biology in general and with respect to their food science and technology education. Ensure that students have an understanding of the life-giving molecules DNA and RNA. Ensure that students are able to reflect, understand, incorporate and compare the properties and functions of living organisms based on the structural characteristics, organisation, interaction and biological activity of their DNA and RNA. Ensure that students are familiar with scientific reasoning and method. Ensure that students develop observation and analysis skills which focus on the phenomenon of life and its relationship to how DNA functions. Ensure that students acquire critical and creative skills as well as knowledge of and information regarding molecular biology.

2. Cognitive aims (knowledge): Ensure that students are aware of and understand the composition of genes and how they function. Offer concepts and content relating to the molecules and mechanisms that govern living systems, the content and transmission of genetic information and the fundamental principles of the control of gene expression.

3. Methodological aims (know-how) Ensure that students know how to use electrophoresis to separate nucleic acids and to analyse them. Ensure they know how to hybridise DNA fragments using probes. Ensure that students know DNA sequencing methods. Ensure they know PCR methods. Ensure that students know how to use the databases that are commonly used in biocomputing.

5157. Analysis Techniques
ECTS credits: 6  Semester: 1

Teaching aims

1. Understand the various stages of the analytical process.
2. Differentiate between the various analytical techniques.
3. Recognise the different volumetric distributions and their applications.
4. Understand the foundations of gravimetric analysis and its possible applications.
5. Understand the foundations and applications of optical techniques in chemical analysis.
6. Understand the foundations and applications of electrochemical techniques in chemical analysis.
7. Understand the foundations and applications of the separation methods most commonly used in chemical analysis.
8. Apply knowledge acquired in the search for information applied to new problems.

**5158 Methods for Quality and Measurements control**

| ECTS credits: 6 | Semester: 1 |

**Teaching aims**

1. Understand and apply the concept of statistical significance and express the corresponding uncertainty.
2. Evaluate, interpret and summarise chemical, microbiological and sensory data and information.
3. Evaluate the suitability of measurement processes in terms of quality and continuous improvement in controlled environments pursuant to currently applicable regulations and good laboratory practices.
4. Take objective decisions in uncertain environments.
5. Optimise procedures and products using strategies based on experiment design.
6. Use specific software.
7. Appropriate planning of oral presentations and expression supported by audiovisual resources.
8. Critical reflection regarding the learning process.

**5159 Unit Operations in the Food Industry I**

| ECTS credits: 4,5 | Semester: 1 |

**Teaching aims**

1. Be aware of and understand unitary transformation operations, knowing how to select possible alternatives for a specific end.
2. Analyse the influence of operation variables on process performance and its possible effect on foodstuffs.
3. Understand the need to work with engineering criteria to control and optimise environmental processes and sustainability.
Bachelor’s Degree in Food Science and Technology

5160 Food Microbiology and Parasitology I
ECTS credits: 4,5 Semester: 1

Teaching aims

1. Demonstrate sufficient knowledge of the microorganisms and parasites that can colonise foodstuffs.
2. Understand the factors which determine the multiplication of microorganisms in food.
3. Demonstrate knowledge of the mechanisms that play a part in the microbial alteration of foodstuffs.
4. Understand the most important altering and pathogenic microorganisms as far as foodstuffs are concerned.
5. Understand the foundations of microbiological and parasitological analysis of foodstuffs.

5161 Economy and Management of Food Companies
ECTS credits: 3 Semester: 1

Teaching aims

Introduce the student to Business Administration and specifically the aspects related to the concept of a company, the management process, accountancy analysis and tools, basic decision making in operative areas: financial, production and marketing.

5162 Unit Operations in the Food Industry II
ECTS credits: 4,5 Semester: 2

Teaching aims

1. Acquire the knowledge required in order to understand the various process parameters regarding performance and the effectiveness of basic operations within the food industry.
2. Identify the most appropriate basic operation for each food industry raw material transformation process.
3. Recognise the importance of planning, development and control of food industry processes in obtaining products of the desired quality.
Bachelor’s Degree in Food Science and Technology

5163 Food Microbiology and Parasitology II
ECTS credits: 4,5  Semester: 2

Teaching aims

1. Understand the possible sources of natural contamination and the microbiological basis for the conservation of different foodstuffs.
2. Identify the main food-borne helminthiasis.
3. Correctly interpret the results of microbiological and parasitological analysis of foodstuffs.
4. Put foodstuff microbiological quality control standards into practice.

5164 Chemistry and Food Biochemistry
ECTS credits: 6  Semester: 2

Teaching aims

Through this subject the aim is to ensure that the student:
1. Can identify the characteristic components of foodstuff biochemical systems in terms of structure, chemical and biochemical properties and functions and reactivity.
2. Understand and consider the importance of enzymes to final quality and in the processing and treatment of foodstuffs.
3. Analyse and describe chemical and biochemical reactions in foodstuffs during their processing and treatment.
4. Understand the modifications and the role played by the main components in foodstuffs (proteins, carbohydrates, fats etc.) during processing and storage.
5. Identify the main groups of food additives and their specific functions.
6. Resolve practical laboratory questions related to the subject matter.

5165 Feedstock Production
ECTS credits: 4,5  Semester: 2

Teaching aims

Ensure a basic knowledge of animal and vegetable production systems. Special treatment of factors relating to production systems which have a major influence
5166 Food Science I

| ECTS credits: 6 | Semester: 2 |

Teaching aims

1. Understand the general foundations of food analysis. Understand the parameters to be established when characterising food and assessing its suitability for sale and consumption.
2. Understand the basic aspects of the origin, identification, structure and composition of the animal-based foodstuffs.
3. Estimate the relationship between the characteristics described in the previous paragraph and the main food quality criteria and its nutritional and commercial value.
4. Understand the analytical procedures which determine the parameters of interest in the main animal-based foodstuffs.
5. Be able to apply and develop analytical approaches which improve upon existing methodology or which resolve new problems regarding the analysis of the main animal-based foodstuffs.

5167 Food Sensory Analysis

| ECTS credits: 4,5 | Semester: 2 |

Teaching aims

The aims of this subject are of a cognitive nature - the acquirement of knowledge - and practical - the acquirement of skills, all of which are related to sensory analysis in general and specifically their application to the food industry both in terms of the evaluation of foodstuffs and of materials and processes, marketing strategies, consumer research, preferences, leading brands, the design of new products etc.