# COURSE DATA

## DATA SUBJECT

**Code:** 33947
**Name:** New Foodstuffs
**Cycle:** Undergraduate Studies
**ECTS Credits:** 6
**Academic year:** 2025-26

## STUDY (S)

| Degree | Center | Acad. year | Period |
|---|---|---|---|
| 1205 - Degree in Human Nutrition and Dietetics | Facultat de Farmácia i Ciències de L'alimentació | 4 | First quarter |

## SUBJECT-MATTER

| Degree | Subject-matter | Character |
|---|---|---|
| 1205 - Degree in Human Nutrition and Dietetics | Novel foods | ELECTIVES |

## COORDINATION

GAMERO LLUNA MARIA DESAMPARADOS

# SUMMARY

Novel Foods is an elective subject in the fourth year of Degree in Food Nutrition and Dietetics, which is taught in the Faculty of Pharmacy and Food Sciences, University of Valencia. This subject has a total of 6 ECTS credits.

Regulation EC 258/97 of the European Comission and the Council of 27th January 1997 concerning novel foods and food ingredients provide the detailed rules for the licensing, marketing and labeling of novel foods and novel food ingredients. This regulation defines novel foods and novel food ingredients which are those that have not been on the EU market to a significant degree before the entry into force of the Regulation in May 1997. Will be classified as novel foods genetically-modified (GM) foods, exotic foods and foods of new formulation or processing technology, many of which are enclosed in so-called functional foods. Functional food is defined as one that, as part of a balanced diet, has a health benefit beyond their nutritional value. The current European normative requires a robust and rigorous scientific demonstration of the healthful properties that are declared in a food. This fact has promoted in recent years the research of the multiple beneficial effects of food ingredients and the development of areas such as nutrigenomics, which seeks to establish the relationship between diet and genome.

# PREVIOUS KNOWLEDGE

## RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

## OTHER REQUIREMENTS

To have completed the subjects Biology, Biochemistry, Microbiology and Chemistry

# COMPETENCES / LEARNING OUTCOMES

## 1205 - Degree in Human Nutrition and Dietetics

Know, judge and know how to use and apply the sources of information related to nutrition, food, lifestyles and health.

Know about new trends in food technology for the preparation of bioactive components and marketing of novel foods and nutraceuticals.

Know the key bioactive components in foods and nutraceuticals.

Know the legislation regarding nutrition and health claims.

# DESCRIPTION OF CONTENTS

### 1. Introduction

Topic 1. Novel Foods. Definition. European regulation. Categories of novel foods.

Topic 2. Functional foods. History and definitions. Nutritional and health claims. Regulation.

Topic 3. Genetically modified foods. Definition. GM foods today. The social debate.

### 2. Probiotics and prebiotics

Topic 4. The human gut microbiota. Bases of the human gut physiology. Physiological functions. Ecology of the gastrointestinal tract. Microbial metabolism in the gastrointestinal system.

Topic 5. Probiotics. Definitions. Requirements and evaluation criteria. Functions and mechanisms of action. Selection and production methods.

Topic 6. Beneficial effects of probiotics. Gastrointestinal disorders. Intestinal inflammatory diseases and syndromes. Cancer. Allergy. Urogenital tract disorders.

Topic 7. Prebiotics and synbiotics. Definition, types and properties. Selection and evaluation methods. Physiological and local effects. Modulation of the gastrointestinal microbiota. Immune system. Metabolism and absorption. Probiotics in infancy. Gastrointestinal effects. Probiotics in old age. Cancer. Other beneficial effects.

**3. Functional ingredients**

Topic 8. Carbohydrates and dietary fiber. Carbohydrates as functional ingredients. Definition and types of dietary fiber. Physiological functions of dietary fiber. Functional foods with fiber.

Topic 9. Proteins and peptides. Biological effects of functional peptides. Origin and methods for obtaining peptides with biological activity. Functional foods with active peptides.

Topic 10. Fatty acids. Physiological functions and the origin of short-chain fatty acids, phospholipids, polyunsaturated fatty acids and conjugated fatty acids. Functional foods with fatty acids.

Topic 11. Antioxidants. Oxidative stress. Modes of action. Toxicological aspects. Antioxidant compounds. Functional foods with antioxidants.

Topic 12. Nutraceuticals. Definitions. Plant extracts. Examples of nutraceuticals. Regulations.

**4. Nutrigenomics**

Topic 13. Nutrigenetics and nutrigenomics. Definitions. Past, present and future. Gene-diet interactions. Methodology. Nutrigenomics in sickness and health.

Topic 14. Nutrigenomics and prevention. Public Health. Cancer. Cardiovascular disease. Obesity.

**5. Social aspects**

Topic 15. Regulations and society. Regulation on functional foods outside the European Union. Draft Regulation of the European Union. Economic impact on the business sector. Dissemination tools and social impacts.

**6. Laboratory work**

1. Probiotic bacteria in fermented milk.
2. Production of fermented milk.
3. Evaluation of the antioxidant capacity of food and commercial extracts.

## WORKLOAD

## PRESENCIAL ACTIVITIES

| Activity | Hours |
|---|---|
| Tutorials | 2,00 |
| Theory | 38,00 |
| Seminar | 2,00 |
| Laboratory | 15,00 |
| **Total hours** | **57,00** |

## NON PRESENCIAL ACTIVITIES

| Activity | Hours |
|---|---|
| Attendance at other activities | 0,00 |
| Individual or group project | 10,00 |
| Independent study and work | 15,00 |
| Preparation of lessons | 25,00 |
| Preparation for assessment activities | 30,00 |
| Resolution of case studies | 10,00 |
| **Total hours** | **90,00** |

# TEACHING METHODOLOGY

Teaching is based on the individual study of the topics that will be reinforced with the organization of **tutoring**. Prior to the date of tutoring, the student must have prepared the proposed activities to reinforce the learning of specific aspects of the program. **Theory** classes are taught using audio-visual equipment. The student will have this material available in the virtual classroom.

The **laboratory** work will favor the relationship between knowledge and its application to practice. Prior to visit the lab, a booklet with the procedures and practical issues will be provided.

The coordinated **seminars** are group work that will consist of the formulation of an experimental project related to the subject and in line with the Sustainable Development Goals (SDGs), also allowing, on a voluntary basis, its dissemination (student congress, video on YouTube, Service-Learning...). All of this within the framework of the educational innovation project ServiScience. Coordinated seminars will take place on topics selected and related to the course and must follow the guidelines on coordinated seminars available at the web page of the Degree. The development of the seminar will be monitored through tutorials, to be agreed upon between the teacher and the students.

Along the theory and laboratory classes, examples of the applications of the contents of the subject in relation to the Sustainable Development Goals (SDG) will be addressed, as well as in the proposals of topics for the coordinated seminars. The aim is to provide students with knowledge, skills and motivation to understand and address these SDGs.

# EVALUATION

a) **Theory (60%)**: Evaluation of theoretical content established for the subject through a written test. A

minimum of 5 points out of 10 in this test is needed to pass the subject.

b) **Laboratory work (20%)**: Evaluation of laboratory work through a written test that will reflect the work done and the ability to solve the experimental problems raised, and, optionally, assess the ability to make well-detailed and organized reports of experimental results. A minimum of 4 points out of 10 in this test is needed to pass the subject. Additionally, the grade obtained will be multiplied by a coefficient between 0.5 and 1 to be considered by the teaching staff depending on the attitude, participation in the laboratory and punctuality shown by the student.

c) **Coordinated seminars (10%)**: Elaboration, presentation and defense of works related to the contents explained and discussed in the classroom related to one of the subjects studied during the semester. Written work and the level of understanding of the content and skills to their exposure, defense and discussion will be evaluated.

d) **Tutorials (10%)**: Evaluation of the work during the tutorials and the ability to solve the proposed activities in class during the course.

To pass the subject, 5 or more points out of 10 must be obtained in the final grade, considering all evaluable activities.

To obtain "with honors" mention, it is a preferred criterion to pass the subject in the first call.

The activities of laboratory, tutorials and seminars, are of MANDATORY ATTENDANCE and, therefore, NOT RECOVERABLE, in accordance with the provisions of Article 6.5 of the Regulation of Evaluation and Qualification of the UV for Bachelor and Master degrees. If it is not possible to attend any of these activities for justified reasons, it must be communicated in advance. In this way, the professor in charge of the subject will determine the actions to be carried out.

Attendance at practices, tutorials and seminars is mandatory to pass the subject. Attendance is NOT mandatory for repeating students who have completed these activities in the two courses after their completion, during which the grades will be kept. Non-attendance without justified cause in the tutorials or in the coordinated seminars will imply a zero in the corresponding evaluation section, on the other hand, the non-presentation of the coordinated seminar will imply the failure of the subject, except for the repeating students who have attended and presented in previous courses.

Evidence of copying or plagiarism in any of the assessable tasks will result in failure to pass the subject and in appropriate disciplinary action being taken. Please note that, in accordance with article 13. d) of the Statute of the University Student (RD 1791/2010, of 30 December), it is the duty of students to refrain from using or participating in dishonest means in assessment tests, assignments or university official documents. In the event of fraudulent practices, the "Action Protocol for fraudulent practices at the University of Valencia" will be applied (ACGUV 123/2020): https://www.uv.es/sgeneral/Protocols/C83sp.pdf

## REFERENCES

- Webb, G.P. (2007) Complementos nutricionales y alimentos funcionales. Ed. Acribia. Zaragoza.
- Bañares, S. (2006). Los alimentos funcionales y las alegaciones alimentarias, una aproximación jurídica. Ed. Atelier. Barcelona.
- Serra, L. (2008). Guía de la alimentación funcional: Los probióticos en la alimentación humana. Ed. Elsevier Masson. Barcelona.
- FECYT. (2005). Alimentos funcionales. FECYT, Madrid, España.
- Mazza, G. (2000). Alimentos funcionales. Ed. Acribia, Zaragoza, España
- Aranceta, (2002). Alimentos funcionales: Probióticos.
- Hurst, J (2002). Methods of analysis for functional foods and nutraceuticals.
- Ramón, D. (1999). Los genes que comemos. Ed. Algar. Alzira
- Sociedad Española de Biotecnología (SEBIOT). Cuadernos de preguntas y respuestas sobre biotecnología. Acceso gratuito en formato pdf. http://www.sebiot.org/
- Muñoz, E. (2006). Organismos modificados genéticamente. Ed. Ephemera. Madrid.
- Gibson, (2002). Functional foods. Concept to product.
- Gunstone, F.D. (2003). Lipids for functional food and nutraceuticals.
- Heasman, M (2001). The functional foods revolution healthy people, healthy profits.
- Ruiz, M. L. (2001). Nutrición clínica: implicaciones del estrés oxidativo y de los alimentos funcionales.