MASTER: FOOD, NUTRITION AND HEALTH

INTEGRATED MULTIDISCIPLINARY COURSES

<table>
<tr><td colspan="4">Course name: HEALTHY FOOD DESIGN</td></tr>
<tr><td colspan="4">Course Code: FNH 1</td></tr>
<tr><td colspan="4">Field(s)/area(s) of study: Food, Nutrition, Human Health</td></tr>
<tr><td colspan="4">University coordinating the course:</td></tr>
<tr><td colspan="4">Participating universities: UniPd, Ulyon, UAK, UGR, UBC</td></tr>
<tr><td>Total ECTS:</td><td>6</td><td>Language of instruction:</td><td>English</td></tr>
<tr><td>Mode of Delivery</td><td>Online 100%</td><td rowspan="2">Is it possible for students (e.g., those following microcredentials) to follow the online sessions remotely</td><td rowspan="2"></td></tr>
<tr><td>Course type:</td><td>Optative</td></tr>
<tr><td>Total workload per ECTS Credit (25 hours)</td><td colspan="3">1 ECTS = 7h (teaching contact hours) + 18 (self - study time)</td></tr>
<tr><td colspan="4">Short course description:
1. Composition, bromatology and legislative aspects of the following food groups (UniPd):
a. High protein foods: Meat, Fish, Dairy and Legume products.
b. High carbohydrate foods: Cereals and pseudocereals.
c. Vegetables and greens.
d. Oils.
2. Food technology (ULyon). Technological treatments to improve the organoleptic and nutritional properties as well as the microbiological quality of foods.
3. Experimental nutrition concepts (UGR). Bio-functional value and implementation as functional foods or nutraceutical sources.
4. Dietetic treatment with foods and processed products in physiological or pathological situations: Growth, Pregnancy & Lactation, Elderly, Metabolic pathologies, Cancer (UAK).</td></tr>
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Course Content:

1. Bromatological description, nutrient composition, physicochemical properties, and legislative aspects of different food groups (1.5 ECTS): 1. High-protein foods: meat, fish, dairy, and legume products. 2. High-carbohydrate foods: cereals and pseudocereals. 3. Vegetables and greens. 4. Oils.
2. Technological treatments to improve the nutritional value of the different food groups (1.5 ECTS): thermal treatments, high-pressure, biotechnological treatments (microbiological, enzyme treatment, germination), supplementation and extraction procedures.
3. Experimental nutrition and bio-functionality (1.5 ECTS): Bio-functional effects and compounds responsible for health-related beneficial properties. Design, preparation and implementation of functional foods and nutraceutical.
4. Dietotherapy approach of the different food groups to different physiological situations, obesity, cardiovascular disease, diabetes, kidney disease, and cancer (1.5 ECTS): Nutritional requirements, food surveys, dietary design and intervention, specific preparation of foods.

Keywords: food groups, nutrition, dietotherapy, bio-functional properties

Programme Learning Outcomes (PLOs)

PLO1: describe, analyze and integrate the most important concepts in Food, Nutrition Health, and Social Sciences, their rationale and participation procedures, as best practices and as guidelines for future development and improvement
PLO3: understand nutritional principles and physiological mechanisms that link food, diet, and health.
PLO5: acquire knowledge about food processes and technologies, including the role of microbiology and ability to critically evaluate related industrial processes.
PLO6: describe and evaluate state-of-the-art relationships among nutrition, food science and health.
PLO7: implement interventions from the basis of nutrition and food technology as valid strategies for the treatment of different pathologies.
PLO11: design balanced diets, understanding the risks related to unbalanced diets, obesity, metabolic diseases, and eating disorders while also being aware of the cultural and geographical factors that influence eating behaviors.
PLO19: use a standard format of writing professional reports and know the basic principles of writing a scientific publication.
PLO20: sustain an English scientific conversation on topics related to food, nutrition and health. Communicate with high-level fluency and knowledge in technical English, in particular that associated with the fields of food science and nutrition.
PLO26: enrich personal experience by living in different European countries, immersion in their culture, and working with classmates from different countries all over the world. Strengthen European and democratic values and reinforce commitment with Sustainable Development Goals.

Course Learning Outcomes (CLOs):

*1. **Knowledge:** knowledge is described as theoretical and/or factual.*

After completing the course, the students will:

- Understand the role of nutrients in the human body.
- Know the nutritional composition and physicochemical properties of different food groups.
- Know how to adjust diets for nutritional interventions in physiological and pathological situations.
- Know the techniques used to improve the nutritional and functional properties of foods.
- Relate the nutrient and non-nutrient composition of foods to their value as functional foods or source of nutraceuticals.
- Know how to develop research projects.

2. *Skills* (know-how): *Ability to utilise knowledge to solve problems or tasks (cognitive, practical, creative and communication skills).*

By the end of the course the student will be able to:

- Manage, analyze, synthesize, and update information.
- Organize and design activities in the field of human nutrition.
- Communicate orally and in writing.
- Implement knowledge of computer information technologies for the management, processing, and dissemination of information.
- Design a nutritional experiment.

3. *Autonomy & Responsibility*: *Ability to utilise knowledge and skills in an independent manner in different situations.*

By the end of the course the student will be able to:

- Implement critical thinking to work development.
- Carry on independent learning.
- Develop audiovisual presentations.
- Effectively obtain information from books, specialized journals, and other documentation.
- Learn to extract, interpret, and present results and conclusions
- Show the ability to think creatively, contributing new ideas and concepts
- Show interest in quality and excellence in the performance of different tasks.
- Have an ethical and social commitment to the application of acquired knowledge.
- Work in interdisciplinary teams to achieve common goals from different fields of expertise.
- Learn to write scientific articles focused on the publication of the results of supervised research.

Teaching and Learning Methods. Course activities/Study Loads (*workshops, lectures, seminars, field trips, etc*.

Method	**Number of sessions**	**Duration**
Lectures	15	2h (Total 30h)
Tutorials	2	1h (total 2h)
Practice	5	2h (total 10h)
Total teaching contact hours:	**42h**	
Self - study time	**108h**	
Total Learning hours	**150h**	

Assessment Methods

Method	Duration in hours or length in words (as applicable)	Percentage Weighting
Basic theoretical knowledge will be evaluated through: Active attendance, carrying out exercises in class and a self-assessment test.		60%
For the evaluation of the competences associated with this course, the evaluation will preferably be considered through the autonomous work portfolio: - Supervised work and project - Work presentation and debates in class		40%
Assessment Criteria: The assessment criteria will be based on daily participation and continuous evaluation in class, the development of a group or independent work assay, and a final test.		

Study materials/Course literature:

- GIL. Tratado de Nutrición (3ª Edición). Panamericana.Madrid.2017
- FJ. MATAIX VERDÚ. Nutrición y Alimentación Humana (2ª Edición). Ergon. Madrid 2015
- COSTANZO, L. S. “Fisiología”. 5a edición. Barcelona: Elsevier Saunders, 2014.
- RODRÍGUEZ FERRER JM. “Neurofisiología esencial”. Editorial Universidad de Granada, 2018.
- SILBERNAGL, S. " Fisiología. Texto y Atlas". Ed. Médica

Panamericana, 2008.
- SILVERTHORN, D. U. “Fisiología Humana. Un enfoque integrado”. 8a edición Ed. Medica Panamericana, 2019.
- TORTORA, G.J. and DERRICKSON, B. Principios de Anatomía y Fisiología. 13a edición.

Inclusiveness: The course will foster an open, welcoming atmosphere where diversity is recognised, respected, and seen as a source of strength and benefit to the SEA-EU community and beyond. We are committed to creating a safe and inclusive but stimulating and challenging teaching and learning environment
where barriers to success are removed, and individuals' access and participation needs are addressed and catered to.

Ethics: Ethical considerations need to be part of the transdisciplinary research methodology.

Quality Assurance: This course is subject to quality procedures applicable at the programme level as defined in the joint programme literature.