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<b>Course:</b>	L025 - Food Quality and Nutrition
<b>Degree:</b>	Bachelor
<b>Curriculum Unit:</b>	9025006 - Food Structure and Composition
<b>Scientific field:</b>	Chemical Sciences
<b>ECTS<sup>(*)</sup>:</b>	5
<b>Curriculum year:</b>	2nd
<b>Curriculum semester:</b>	1st
<b>Frequency Regime:</b>	Mandatory
<b>Teacher(s):</b>	Fernando Jorge Andrade Gonçalves
<b>Contact hours <sup>(**)</sup>:</b>	T - 30; TP - 30
<b>Total work time (hours):</b>	138

(\*) - ECTS - European Credit Transfer and Accumulation System

(\*\*) – T- Theoretical; TP- Theoretical/Practical; LP- Lab Practice; S- Seminars; I- Internships; TU - Tutorials; O- Other (Evaluations)

## Objectives / Competences

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At the end of this curricular unit, the students should have deepened their knowledge about the structure and composition of foods of animal and vegetable origin. Also, it is intended that they are able to relate the structure with the properties of the constituents of foods. Have developed through laboratory experience acquiring practical knowledge's, enabling them to access to employment, namely in food laboratories.

## Syllabus

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- I. Structure and composition of foods of animal and vegetable origin with importance for the human diet.
- II. Food components: Water (concept of water activity, sorption isotherms, relationship between water retention and composition); Proteins (types of proteins in food, properties with bromatology interest, stiffness and muscle contraction, importance on food structure), phenolic compounds (structure, antioxidant properties, biosynthesis and bioavailability; methods of extraction and quantification).
- III. Use of Food Additives (classification, usage factors, effect on the composition of foods).

## Teaching methodologies and evaluation criteria

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There will be lectures covering theoretical concepts and laboratory classes.

- Theoretical component:

Lectures are descriptive with audiovisual resources (ex. Power point); research, presentation and discussion of scientific papers (eg science direct database).

- Laboratory classes:

Carrying out of laboratory experiments.

The student must obtain a minimum grade of 10 in each one of the components. The re-sit to better a mark is allowed in accordance with the current regulation practiced at ESAV.

### **Short bibliography**

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- Tsai, C.S. (2007) Biomacromolecules, Introduction to Structure, Function and Informatics, Wiley, New Jersey.
- Belitz, H.-D.; Grosch, W.; Schieberle, P. (2004) Food Chemistry, 3rd edition, Springer-Verlag.
- Fennema, O. R. (2000). Química de los alimentos. Ed. Acribia S.A., Zaragoza.
- Potter, N. N. e Hotchkiss J. H. (1995) Ciencia de los alimentos. Editorial Acribia S.A., Zaragoza.
- Coenders, A. (1996). Química culinaria: estudio de lo que les sucede a los alimentos antes, durante y después de cocinados. Ed. Acribia S.A., Zaragoza.
- Leo ML Nollet. (2004) Handbook of Food Analysis (Vol.1), Marcel Dekker, NY.
- Coulter, T. (2009) Food: The chemistry of its components, Royal Society of Chemistry.