Study Plan

School: Institute for Research and Advanced Training
Degree: Doctorate
Course: Food Sciences (cód. 659)

Specialization Food Science and Technology

1st Year - 1st Semester
Specialization Food Science and Technology

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
QUI12716D	Advanced Food Chemistry	Chemistry	6	Semester	156
FIT12717D	Advanced Food Science and Technology	Agricultural and Food Engineering	6	Semester	156
MAT12718D	Biostatistics	Mathematics	6	Semester	156
*** TRANSLATE ME:Optativas (Modulos Especializados) ***					
	Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	QUI12719D	Specialized Modules in Food Chemistry	Chemistry	6	Semester	156
	FIT12720D	Sp.Modules Food Science and Technology	Agricultural and Food Engineering	6	Semester	156
Free option - (Transversal Competencies)					

1st Year - 2nd Semester
Specialization Food Science and Technology

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
FIT12875D	Thesis Project	Chemistry	30	Semester	780

2nd Year - 3rd Semester
Specialization Food Science and Technology

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

2nd Year - 4th Semester
Specialization Food Science and Technology

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

3rd Year - 5th Semester
Specialization Food Science and Technology

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

3rd Year - 6th Semester
Specialization Food Science and Technology

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

Specialization Food Chemisty

1st Year - 1st Semester
Specialization Food Chemisty

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
QUI12716D	Advanced Food Chemistry	Chemistry	6	Semester	156
FIT12717D	Advanced Food Science and Technology	Agricultural and Food Engineering	6	Semester	156
MAT12718D	Biostatistics	Mathematics	6	Semester	156
*** TRANSLATE ME:Optativas (Modulos Especializados) ***					

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
QUI12719D	Specialized Modules in Food Chemistry	Chemistry	6	Semester	156
FIT12720D	Sp.Modules Food Science and Technology	Agricultural and Food Engineering	6	Semester	156

Free option - (Transversal Competencies)

1st Year - 2nd Semester
Specialization Food Chemisty

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
FIT12875D	Thesis Project	Chemistry	30	Semester	780

2nd Year - 3rd Semester
Specialization Food Chemisty

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

2nd Year - 4th Semester
Specialization Food Chemisty

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

3rd Year - 5th Semester
Specialization Food Chemisty

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

3rd Year - 6th Semester
Specialization Food Chemisty

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

Conditions for obtaining the Degree:

*** TRANSLATE ME: Para obtenção do grau é necessário a aprovação (através de avaliação ou creditação) das seguintes unidades curriculares:

1º Ano

1º Semestre:

3 UC obrigatórias num total de 18 Ects

1 UC optativa num total de 6 Ects

1 UC optativa livre num total de 6 Ects

2º Semestre:

1 UC obrigatórias num Total de 30 Ects

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Para obtenção do grau, é necessário a aprovação da Tese com o total de 240 ECTS ao longo do 2, 3 e 4 anos de duração do curso { \ } newline

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Program Contents

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Advanced Food Chemistry (QUI12716D)
1. Major food chemical structures. Water. Aminoacids, peptides and proteins. Enzymes. Lipids. Carbohydrates. Aroma compounds. Vitamins and minerals.
2. Chemical and biochemical processes in food.
3. Chemical, physical and sensory properties, advances on its relation to the chemical structures and to the chemical and biochemical processes.
4. New and innovative methods (especially instrumental or rapid) for the identification and quantification of components in foods.

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Advanced Food Science and Technology (FIT12717D)
Wide science-based education, which due to the scope and multidisciplinary approach that is intended, is organized in advanced thematic seminars incidents in the areas of food science and technology such as:
1 - Food quality and safety: challenges to the production of safe foods.
2 - Innovation in food technology: new materials, processes and products;
3 - The sustainability of food production systems
4 - organic and biodynamic products: new production trends
5 – Technologies of products of animal origin
6 - Technologies of products of vegetal origin

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Biostatistics (MAT12718D)
Design of experiments (sampling, statistical and biological assumptions)
Analysis of variance models (crossed, nested and repeated measures)
Linear and nonlinear regression models. Correlation. Association.
Analysis of Covariance.
Non-parametric methods.
Introduction to statistical process control.
Multivariate statistical methods (principal components analysis, factor analysis and clusters).

Specialized Modules in Food Chemistry (QUI12719D)

The UC is an important component of the doctoral program. It confer to the student specialized formation in the field of Food Chemistry which will be needed in the research work for the thesis.

Sp.Modules Food Science and Technology (FIT12720D)

The UC is an important component of the doctoral program. It confer to the student specialized formation in the field of Food Science and Technology which will be needed in the research work for the thesis.

Thesis Project (FIT12875D)

The syllabus of this curricular unit is designed to help the student understand and scientifically summarize his (her) research objectives and means needed to successfully carry it out. He should learn to revise and lay out the state of art related to his subject matter, and clearly enunciate the objectives of his (her) study, the hypothesis and the expected results. Included topics are:

a) state of art of scientific knowledge;

b) definition of objectives of scientific research and experimental work;

c) scientific experimental design and related statistical methods, methodology applied and evaluation of the necessary means, tools and instruments to successfully carry out the experimental work;

d) expected results;

e) contingency plan according to expected constraints;

f) thesis timetable;

g) public presentation, discussion of the thesis project.