


	PROCESO PARA EL DESARROLLO DE LAS ENSEÑANZAS DE LA ESCUELA DE INGENIERÍAS AGRARIAS		
		CÓDIGO: P/CL009_D002	

PROGRAMME IN FOOD TECHNOLOGY

Academic course: 2020-2021

Identification and characteristics of the subject					
Code	501122			Créditos ECTS	6
Name (Spanish)	Análisis y Química Agrícola				
Name (English)	Agricultural Analysis and Chemistry				
Degree	ENGINEERING IN AGRICULTURAL AND FOOD INDUSTRIES				
Center	Agricultural Engineering School				
Semester	(2nd)	Type	Compulsory		
Module	Basic				
Subject	Chemistry				
Language	Spanish				
Professor/s					
Name	Room	e-mail	Web link		
Concepción de Miguel Gordillo	D-611 Edificio Tierra de Barros	cdemigue@unex.es			
Francisco Javier Viguera Rubio	D-IMAF Edificio Alfonso XIII	jviguera@unex.es			
M^a Josefa Bernalte García	D-601 Edificio Tierra de Barros	bernalte@unex.es			
Field of knowledge	Soil Science and Agricultural Chemistry				
Department	Plant Biology, Ecology and Earth Sciences				
Coordinator (if there is more than one professor)	M^a Josefa Bernalte García				
Lessons and contents					
Syllabus					
1 Agricultural Analysis					
Lesson 1. Analytical chemistry, chemical analysis, agricultural analysis. Reactions)					

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- Lesson 2.** Agricultural analysis. General operations. Classification of methods.
- Lesson 3.** Separation methods: Introduction. Classification.
- Lesson 4.** Precipitation. Distillation. Extraction.
- Lesson 5.** Separation methods 2. Chromatographic separations. Introduction. Chromatography in column).
- Lesson 6.** Paper and thin layer chromatography.
- Lesson 7.** Gas chromatography.
- Lesson 8.** Ionic exchange chromatography.
- Lesson 9.** Gravimetric methods.
- Lesson 10.** Optical methods of analysis.
- Lesson 11.** Common electroanalytical methods.
- Lesson 12.** Interpretation of irrigation water analysis.

2 Agricultural Chemistry

- Lesson 13.** Precipitation and redox equilibria in food and agriculture.
- Lesson 14.** Chemistry of natural products.
- Lesson 15.** Colloidal solutions. Soil colloids.
- Lesson 16.** Nitrogen, phosphorus and potassium. Fertilizers,
- Lesson 17.** Sulfur, calcium and magnesium. Oligoelements.
- Lesson 18.** Pesticides. Basic concepts.
- Lesson 19.** Chlorine and phosphorous insecticides.
- Lesson 20.** Carbamic and piretroid insecticides.
- Lesson 21.** Other insecticides and fighting strategies.
- Lesson 22.** Fungicides.
- Lesson 23.** Herbicides.

PRACTICAL SYLLABUS

Practical lesson #1: Determination of carbonates and acid carbonates in irrigation water

Practical lesson #2: Separation of ink pigments by paper chromatography

Practical lesson #3: Determination of pH and conductivity in irrigation water

Practical lesson #4: Semi-quantitative determination of texture and carbonates in soil

Practical lesson #5: Rapid methods to identify some immediate principles

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Practical lesson #6: Practical applications of precipitation equilibria

Practical lesson #7: Seminar on precipitation equilibria

Practical lesson #8: Seminar on redox equilibria