


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

PROGRAMME IN FOOD TECHNOLOGY

Academic course: 2019-2020

Identification and characteristics of the subject					
Code	501122			Créditos ECTS	6
Name (Spanish)	Análisis y Química Agrícola				
Name (English)	Agricultural Analysis and Chemistry				
Degree	Degree in Food Science and Technology				
Center	Agricultural Engineering School				
Semester	First (1º)	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			
Mª 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)	Mª 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