

## 25223 - Agrosilvopastoral systems

### Información del Plan Docente

Academic Year	2017/18
Faculty / School	201 - Escuela Politécnica Superior
Degree	277 - Degree in Environmental Sciences
ECTS	6.0
Year	3
Semester	First Four-month period
Subject Type	Compulsory
Module	---

### **1.General information**

#### **1.1.Introduction**

#### **1.2.Recommendations to take this course**

#### **1.3.Context and importance of this course in the degree**

#### **1.4.Activities and key dates**

### **2.Learning goals**

#### **2.1.Learning goals**

#### **2.2.Importance of learning goals**

### **3.Aims of the course and competences**

#### **3.1.Aims of the course**

#### **3.2.Competences**

### **4.Assessment (1st and 2nd call)**

#### **4.1.Assessment tasks (description of tasks, marking system and assessment criteria)**

### **5.Methodology, learning tasks, syllabus and resources**

#### **5.1.Methodological overview**

The course will consist of 30 theory classes (approximately one topic per two hours in class) and 10 practical activities (7 for solving problems and cases, 2 for technical visits and 1 for the educational paper) of varying lengths.

#### **5.2.Learning tasks**

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1 Participatory Master Classes (Activity Type 1) : 30 student hours.

The theoretical program for the subject is divided into three modules: I. Fundamentals of Agriculture, II. Agroforestry Systems and III. Agricultural Policy.

2 Solving Problems and Cases (Activity Type 2) : 14 student hours.

Set of practices in which the students ,working in small groups of 4-5 students, will solve environmental problems and cases linked to agrosilvopastoral activity.

3 Special Practices (Activity Type 4) : 10 student hours.

Given the importance of direct contact with the agricultural environment for the learning of this course, two external technical visits are scheduled: one to a heavy agricultural production system in the Valle del Ebro region and another to an agroforestry production system in the Pyrenees.

4 Educational Papers (Activity Type 6) : 20 student hours.

Creation and presentation of a seminar-type practical work. The topics for this activity will be proposed at the beginning of the course.

5 Study (Activity Type 7): 74 student hours.

Time dedicated by the student to studying the described educational activities outside of the classroom.

6 Evaluation Test (Activity Type 8): 2 student hours.

Taking the comprehensive evaluation test in accordance with the Regulations of Learning Evaluation Standards of the University of Zaragoza.

### 5.3.Syllabus

#### Theoretical program:

*I: Fundamentals of Agriculture:*

1. Origin of Agriculture

2. Agriculture and Environment

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3. Sustainable Agricultural Production

4. Soil and Fertility Management

5. Water Management

6. Genetic Resources

7. Crop Protection

*II: Agroforestry Systems:*

8. Agricultural Systems

9. Silvopastoral Systems

*III. Agricultural Policy*

10. Community Agricultural Policy

11. Good Agricultural Practices Catalog

12. Agri-environmental Measures

13. Vulnerable Areas

14. Rural Development

**Practical Program:**

1. Nitrogen Fertilization in Integrated Production.

2. Calculation of the Water Needs of Crops.

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3. Selection of Plant Material in an Orchard.
4. Control of an Invasive Species in Port Pastures.
5. Estimation of Production, Biodiversity and Quality of Forage in Hay Meadows.
6. Estimation of Stock Densities via GIS.
7. Efficiency in the Use of Irrigation Water.

### 5.4.Course planning and calendar

#### PLANNING

##### Week 1:

- Theory: Origin of Agriculture
- Practice: Course Papers: selection of topics

##### Week 2:

- Theory: Agriculture and Environment
- Practice: Technical Visit for Agroforestry Activity in a valley in the Aragon Pyrenees

##### Week 3:

- Theory: Sustainable Agricultural Production
- Practice: Technical Visit for Irrigated Crops

##### Week 4:

- Theory: Soil and Fertility Management
- Practice: Fertilization of Crops

##### Week 5:

- Theory: Water Management
- Practice: Water Needs of Crops

##### Week 6:

- Theory: Genetic Resources
- Practice: Plant Material in Orchards and Environmental Conditioners

##### Week 7:

- Theory: Crop Protection
- Practice: Control of an Invasive Species in Port Pastures

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Week 8:

- Theory: Agricultural Systems
- Practice: Production, Biodiversity and Quality of Food in Hay Meadows

Week 9:

- Theory: Forestry Systems
- Practice: Estimation of Stock Densities via GIS

Week 10:

- Theory: Community Agricultural Policy

Week 11

- Theory: Good Agricultural Practices Catalog
- Practice: Efficiency in Use of Irrigation Water

Week 12

- Theory: Agri-environmental Aid
- Practice: First Session for Oral Presentation of the Course Papers

Week 13

- Theory: Vulnerable Areas
- Practice: Second Session for Oral Presentation of the Course Papers

Week 14:

- Theory: Rural Development

Week 15:

- Theory: Review and Doubts

When the schedules of the third course of the Degree in Environmental Sciences are approved, the following will be reported:

- Schedule of theory classes
- Schedules of the practice sessions
- Schedule and place for tutoring
- Date for presentation of the practical work
- Dates of the exam sessions for the Comprehensive Tests of the Course

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At the beginning of the course, the students will be given a definitive calendar of the educational activities and a list of educational papers. During the first practice session, the educational papers will be chosen or assigned. The co-authors of every paper will have two tutoring sessions (half an hour long) specifically for the seminar, where the professor will guide them and track their progress.

### 5.5. Bibliography and recommended resources

#### Basic Bibliography:

- Integración del medio ambiente en la política agraria de la UE : informe de evaluación basado en los indicadores IRENA / Agencia Europea de Medio Ambiente . Madrid : Centro de Publicaciones, Ministerio de Medio Ambiente, 2007
- Agricultura sostenible / coordinadores, Rafael M. Jiménez Díaz y Jaime Lamo de Espinosa . Madrid : Mundi-Prensa : Agrofuturo : Life, 1998
- Loomis, R.S.. Ecología de cultivos : Productividad y manejo en sistemas agrarios / R.S. Loomis, D.J. Connor . Madrid : Mundi-Prensa, 2002
- Ferrer Benimeli, C. El Primate Agricultor. Punto Rojo Libros. 2016.
- Gliessman, Stephen R.. Agroecología : procesos ecológicos en agricultura sostenible / Stephen R. Gliessman Turrialba : CATIE , 2002

#### Supplementary Bibliography:

- Pastos del Pirineo / Federico Fillat... [et al.] (eds.) . Madrid : Consejo Superior de Investigaciones Científicas; JaHuesca : Diputación de Huesca, 2008
- Montserrat Recoder, Pedro. La cultura que hace el paisaje : escritos de un naturalista sobre nuestros recursos de montaña / Pedro Montserrat Recoder . Estella (Navarra) : La Fertilidad de la Tierra, 2009
- Snapp, S., Pound, B. (ed) (2008). Agricultural systems: agroecology and rural innovation for development. Amsterdam: Elsevier Academic Press
- La multifuncionalidad de la agricultura en España : concepto, aspectos horizontales, cuantificación y casos prácticos / coordinadores José A. Gómez-Limón, Jesús Barreiro Hurlé ; casos prácticos, Elena Mármol y César Marcos . Madrid : Ministerio de Agricultura, Pesca y Alimentación : Eumedia, 2007
- Ferrer Benimeli, Carlos, Diccionario de Pascolología. Fundación Conde del Valle de Salazar, 2016.

The updated recommended bibliography can be consulted in:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?id=2181>