



Year : 2018/19

## **28947 - Sustainable development and the environment**

### **Syllabus Information**

<b>Academic Year:</b>	2018/19
<b>Subject:</b>	28947 - Sustainable development and the environment
<b>Faculty / School:</b>	201 -
<b>Degree:</b>	437 - Degree in Rural and Agri-Food Engineering
<b>ECTS:</b>	6.0
<b>Year:</b>	4
<b>Semester:</b>	Second semester
<b>Subject Type:</b>	Compulsory
<b>Module:</b>	---

### **General information**

#### **Aims of the course**

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

#### **Recommendations to take this course**

#### **Learning goals**

#### **Competences**

#### **Learning goals**

#### **Importance of learning goals**

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

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

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

#### **Methodological overview**

Theory (3 ECTS) and practical lectures (3 ECTS).

#### **Learning tasks**

To help the students reach the foreseen results, the course syllabus contain the following activities:

Theory sessions (3 ETCS) would be lectures with high participation of the students and will consist on:

- Teacher lectures on theory contents of the subject.

- Lectures on study cases

Theory sessions will consist on 30 hours of onsite sessions using usually powerpoint presentations.

Practical sessions (3 ECTS) will be in two different ways:

- Field trips. Will take place in sites that are relevant examples of sustainable development.

- Onsite classroom sessions. Both in plain classrooms and in computer lab. Will consist on participative discussion sessions regarding. Sustainability problems, look for bibliography, lecture of the students about their conclusions on their work...

## Syllabus

**Theory program, part given by area of ecology:**

1. General aspects of sustainable development integrated in environment and engineering.
2. Conservation and sustainable use of biodiversity
3. Valuing natural assets. Natural capital and ecosystem services.
4. Legislation and environmental management. Protected areas. Birds and Habitats directive. Environmental impact assesment.
5. Climate change and agriculture.
6. Ecological restoration.

**Practical program, part given by area of ecology:**

1. To read and comment articles on sustainable development
2. Search and use specific bibliography
3. Research work about sustainable development

## Course planning and calendar

Calendar, timetable, tutorials and exams will be adjusted to the general academic calendar of Saragossa University and its Technical School.

A presentation on the subject will be done the first day of lessons.

There will be 4 hours of lectures per week, 2 of theory and 2 of practices, except for the weeks with field work, where the timetable will be modified. Students will be informed previously on this.

Activity and 1 week	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
O ac																				35
Theory								2		2	2	2	2	3	2					15
Problem solving								2		2	2		2							8
L																				0
Team work																				0
Field trips														8						8
Tutorials																				0
Assessment activities																		4		4
O ac																				35
Autonomuos work								4		2	2	2	2		5					17
Team work										4	2	6	6							18
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>10</b>	<b>8</b>	<b>10</b>	<b>12</b>	<b>11</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>4</b>		<b>70</b>

## Bibliography and recommended resources

BB	Chiras, Daniel D.. Environmental science / Daniel D. Chiras . 10th ed Burlington, MA : Jones & Bartlett Learning, cop. 2016
BB	Ecología y medio ambiente / Teresa Valverde ... [et al.] ; revisión técnica Gabriel Ramos García, Héctor Meraz Larraga . México : Pearson, 2005
BB	Goleman, Daniel. Inteligencia ecológica / Daniel Goleman ; [traducción, David González Raga] . 1ª ed. Barcelona : Kairós, 2009
BB	Miller, G.T. (2007). Ciencia Ambiental: Desarrollo Sostenible. Un Enfoque Integral. Thomson
BB	Nebel, Bernard J.. Ciencias ambientales : ecología y desarrollo sostenible / Bernad J. Nebel, Richard T. Wright ; traducción, Francisco Javier Dávila ; revisión técnica,

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José Salvador Pantoja M. . 6ª ed. México [etc.] : Prentice Hall, 1999  
Smith, Thomas Michael. Ecología / Thomas M. Smith, Robert Leo Smith . 6a. ed. Madrid [etc.] : Pearson Addison-Wesley, D.L. 2007

#### LISTADO DE URLs:

Europarc España -  
[<http://www.redeuroparc.org/>]  
Ham, S.H. (1992). Environmental Interpretation. A practical guide for people with big ideas and small budgets. Colorado: North American Press -  
[[http://serceducationvolunteers.files.wordpress.com/2012/12/interpretation-sam-h](http://serceducationvolunteers.files.wordpress.com/2012/12/interpretation-sam-ham.pdf)]  
International Union for Conservation of Nature, IUCN - [<http://iucn.org/>]  
Ley 42/2007, de 13 de diciembre, del Patrimonio Natural y de la Biodiversidad -  
[[http://www.boe.es/diario\\_boe/txt.php?id=BOE-A-2007-21490](http://www.boe.es/diario_boe/txt.php?id=BOE-A-2007-21490)]  
Ley 5/2002, de 4 de abril, de Caza de Aragón -  
[<http://www.boe.es/boe/dias/2002/05/14/pdfs/A17387-17407.pdf>]  
Novo, M. (2009). La educación ambiental, una genuina educación para el desarrollo sostenible / Environmental Education, a genuine education for sustainable development. Revista de Educación, nº extraordinario, 195-217 -  
[[http://www.revistaeducacion.mec.es/re2009/re2009\\_09.pdf](http://www.revistaeducacion.mec.es/re2009/re2009_09.pdf)]  
Pool-Stanvliet, R., Clüsener-Godt, M. (2013). AfriMAB. Biosphere Reserves in Sub-Saharan Africa: Showcasing Sustainable Development. Pretoria: Department of Environmental Affairs y París: Unesco -  
[<http://unesdoc.unesco.org/images/0022/002269/226919e.pdf>]

The updated recommended bibliography can be consulted in:  
<http://psfunizar7.unizar.es/br13/egAsignaturas.php?id=8108>