



## IDENTIFYING DATA

### Management and Conservation of spaces

Subject	Management and Conservation of spaces			
Code	V02G030V01910			
Study programme	Grado en Biología			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language	#EnglishFriendly Spanish Galician			
Department				
Coordinator	Calviño Cancela, María			
Lecturers	Calviño Cancela, María Soto González, Benedicto			
E-mail	maria@uvigo.es			
Web				
General description	<p>This subject is focused on natural areas, their management and conservation, as a basis for an ecosystem-centred conservation of biodiversity, in contrast with the the more conventional approach of species-centred conservation. The subject encompasses general topics about natural areas, types of protected areas and general principles for their design and planning, their socio-economic context as well as planning and management tools.</p> <p>English Friendly subject: International students may request from the teachers: a) resources and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English. Schedule: #<a href="http://bioloxia.uvigo.es/*gl/*docencia/schedules">http://bioloxia.uvigo.es/*gl/*docencia/schedules</a></p>			

## Training and Learning Results

Code	
A1	Students should prove understanding and knowledge in this study field that starts in the Secondary Education and with a level that, even though it is supported in advanced books, also includes some aspects that involve knowledge from the vanguard of the study field.
A2	Students should know how to apply their knowledge to their work or vocation in a professional way. They also should have the competences that are usually proved through the elaboration and defence of arguments and the resolution of problems within their study field.
A3	Students should prove ability for information-gathering and interpret important data (usually within their study field) to judge relevant social, scientific or ethical topics.
A4	Students should be able to communicate information, ideas, issues and solutions to all audiences (specialist and unskilled audience).
A5	Students should develop the necessary learning skills to undertake further studies with a high degree of autonomy
B2	Ability of reading and analyzing scientific papers and having critical assessment skills to understand data collection, deducing the main idea from the least relevant ones and basing on the corresponding conclusions.
B3	Acquisition of general knowledge about the basic subjects of biology, both at theory and experimental level, without dismissing a higher specialization in subjects that are oriented to a concrete professional area.
B4	Ability in handling experimental tools, both scientific and computer technology equipment that support the search for solutions to problems related to the basic knowledge of biology and with those of a concrete labour context.
B5	Understanding of the levels of organization of living beings from a structural (molecular, cellular and organic) and functional point of view by observing their relations with the environment and other organisms, as well as their appearances in situations of environmental alteration.
B7	Collection of information about issues of biologic interest, analysis and emission of critical opinions and reason them including the reflection about social and/or ethical aspects related to the issue.

B10	Development of analytic and abstraction skills, the intuition and the logical and rigorous thought through the study of biology and its uses.
B11	Ability to communicate in detail and clearly: knowledge, methodology, ideas, issues and solutions to all audiences (not only qualified but unskilled in Biology).
B12	Ability to identify their own educational necessities in the biology field and in concrete labour areas and to organize their learning with a high grade of autonomy in any context.
C1	Obtaining, managing, preserving, describing and identifying current biological organisms and fossils.
C11	Sampling, characterizing, managing, preserving and restoring Populations, Communities and Ecosystems.
C12	Cataloguing, mapping, assessing, preserving, restoring and managing natural and biological resources.
C13	Assessing environmental impact. Diagnosing and solving environmental issues
C15	Describing, analysing, evaluating and planning of the physical environmental. Intepreting the scenery.
C22	Identifying, describing and using bioindicators.
C25	Gathering background information, develop experimental work and analysing data results
C31	Knowing and handling technical and scientific apparatus.
C32	Knowing and handling basic or specific key concepts and terminology
C33	Understanding the social projection of Biology.
D1	Development of capacity of analysis and synthesis
D2	Acquisition of the organization and planning capacity for tasks and time
D3	Development of oral and writting communication abilities
D4	Acquisition of foreign language knowledge related to the study field
D5	Use of computer resources related to the study field
D6	Research and interpreting of information from different sources
D7	Resolution of issues and decision making in an effective way
D8	Development of the ability of independent learning
D9	Ability to work in collaboration or creating groups with an interdisciplinary character
D10	Development of the critical thinking
D11	Adquisition of an ethical agreement with the society and the profession
D12	Respectful behaviour to diversity and multiculturalism
D13	Sensitivity for environmental issues
D14	Adquisition of abilities in the interpersonal relationships
D15	Development of creativity, initiative and entrepreneurial spirit
D16	Acceptance of a quaility commitment
D17	Development of the self-criticism ability
D18	Development of negotiating power

#### Expected results from this subject

Expected results from this subject		Training and Learning Results		
New	A1	B2	C13	D1
	A2	B3	C25	D2
	A3	B4	C32	D3
	A4	B5	C33	D4
	A5	B7		D5
		B10		D6
		B11		D7
		B12		D8
				D9
				D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18

New	A1	B2	C1	D1
	A2	B3	C11	D2
	A3	B4	C12	D3
	A5	B5	C13	D4
		B7	C15	D5
		B10	C22	D6
		B12	C25	D7
			C31	D8
			C32	D9
			C33	D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18
New	A1	B2	C11	D1
	A2		C12	D2
	A3		C13	D3
			C15	D4
			C25	D5
			C32	D6
			C33	D7
				D8
				D9
				D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18
New	A3		C1	D1
			C11	D2
			C12	D3
			C13	D4
			C15	D5
			C22	D6
			C25	D7
			C31	D8
			C32	D9
			C33	D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18

New	A1	B2	C13	D1
	A3	B3	C32	D2
		B7	C33	D3
		B10		D4
				D5
				D6
				D7
				D8
				D9
				D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18
New	A1	B4	C1	D1
		B5	C11	D2
			C12	D3
			C13	D4
			C15	D5
			C22	D6
			C25	D7
			C31	D8
			C32	D9
			C33	D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18
New	A2	B10	C13	D1
	A3	B11		D2
	A4			D3
	A5			D4
				D5
				D6
				D7
				D8
				D9
				D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18

New	A3	B2	C1	D1
		B3	C11	D2
		B4	C12	D3
		B5	C13	D4
		B7	C15	D5
		B10	C22	D6
		B11	C25	D7
		B12	C31	D8
			C32	D9
			C33	D10
				D11
				D12
				D13
				D14
				D15
				D16
				D17
				D18
New	A2 A4		C33	D1
				D2
				D3
				D4
				D5
				D6
				D7
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				D15
				D16
				D17
				D18
New	A1 A2 A3 A4 A5	B2	C31	D1
		B3	C32	D2
		B4		D3
		B5		D4
		B7		D5
		B10		D6
		B11		D7
		B12		D8
				D9
				D10
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				D14
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				D16
				D17
				D18

## Contents

Topic	
Part I. Soil and Water Conservation.	Chapter 1. Soil degradation and loss. Chapter 2. Soil Conservation Methods. Chapter 3. Land planning tools. Chapter 4. Water Conservation. Chapter 5. River and Riverbank Restauration.
Part II. Habitat loss, biological integrity and ecosystem conservation.	Chapter 6. Habitat destruction, fragmentation and degradation. Chapter 7. Ecosystem-centred conservation.
Part III. Ecosystem Management and Restauration.	Chapter 8. Principles of ecosystem management, uncertainty, and adaptive management. Chapter 9. Replacement, rehabilitation, restauration and improvement of ecosystems.

Part IV. Selection, design and planning of protected areas.

Chapter 10. Selection of priority conservation areas.  
Chapter 11. Principles of protected area design.  
Chapter 12. Protected areas types and uses.  
Chapter 13. Socio-economic aspects of protected areas. Protected areas planning: planning tools in the Spanish legislation.

Field trip and computer session We will make a field trip to a protected natural area with diverse uses and aims in order to familiarize become familiar with its management.  
We will make one computer session to work with useful tools for management and planning of protected natural areas.

<b>Planning</b>			
	Class hours	Hours outside the classroom	Total hours
Seminars	3	0	3
Field practice	11	0	11
Practices through ICT	3	0	3
Problem solving	6	0	6
Mentored work	2	30	32
Lecturing	12	34	46
Lecturing	13	36	49

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

<b>Methodologies</b>	
	Description
Seminars	Critical discussions about controversies related with natural areas conservation and management.
Field practice	Field trip to a protected natural area with diverse uses and aims in order to become familiar with its management.
Practices through ICT	Practices through ICT Computer session to work with useful tools for management and planning of protected natural areas.
Problem solving	Problem solving for students to get familiar with concepts related with the conservation and management of the soil and water.
Mentored work	Mentored work The students will prepare an assignment related to topics of interest for conservation and management of natural areas.
Lecturing	Chapters in Part I will be explained by the teacher from the Edaphology area.
Lecturing	Chapters in Parts II, III and IV will be explained by the teacher from the Ecology area.

<b>Personalized assistance</b>	
Methodologies	Description
Lecturing	All the students queries related to this part will be attended in the class or tutorials, done by appointment requested by email to the teachers: maria@uvigo.es and edbene@uvigo.es, also available at <a href="https://moovi.uvigo.gal/">https://moovi.uvigo.gal/</a> .
Seminars	All the students queries related to this part will be attended in the class or tutorials, done by appointment requested by email to the teachers: maria@uvigo.es and edbene@uvigo.es, also available at <a href="https://moovi.uvigo.gal/">https://moovi.uvigo.gal/</a> .
Field practice	All the students queries related to this part will be attended in the class or tutorials, done by appointment requested by email to the teachers: maria@uvigo.es and edbene@uvigo.es, also available at <a href="https://moovi.uvigo.gal/">https://moovi.uvigo.gal/</a> .
Practices through ICT	All the students queries related to this part will be attended in the class or tutorials, done by appointment requested by email to the teachers: maria@uvigo.es and edbene@uvigo.es, also available at <a href="https://moovi.uvigo.gal/">https://moovi.uvigo.gal/</a> .
Mentored work	All the students queries related to this part will be attended in the class or tutorials, done by appointment requested by email to the teachers: maria@uvigo.es and edbene@uvigo.es, also available at <a href="https://moovi.uvigo.gal/">https://moovi.uvigo.gal/</a> .
Lecturing	All the students queries related to this part will be attended in the class or tutorials, done by appointment requested by email to the teachers: maria@uvigo.es and edbene@uvigo.es, also available at <a href="https://moovi.uvigo.gal/">https://moovi.uvigo.gal/</a> .
Problem solving	All the students queries related to this part will be attended in the class or tutorials, done by appointment requested by email to the teachers: maria@uvigo.es and edbene@uvigo.es, also available at <a href="https://moovi.uvigo.gal/">https://moovi.uvigo.gal/</a> .

## Assessment

	Description	Qualification	Training and Learning Results			
Practices through ICT	The students will have to solve an exercise in the computer session that will be assessed.	5	B3 B4	C25	D2 D3 D4 D5 D9 D13 D14	
Problem solving	The approach used to solve the problem as well as the correction of the result will be assessed.	10	B3 B4	C25	D2 D3 D4 D5 D9 D13 D14	
Mentored work	The assessment of this part will be based on the ability for synthetize, analyse and correctly express in writing the contents of the topic chosen as well as knowledge on the topics relevant to the subject.	20	A2 A4 A5	B2 B7 B10 B11 B12	D1 D2 D3 D4 D6 D8 D9 D10 D13 D14 D15 D18	
Lecturing	The assessment of this part will be based on the knowledge the student has acquired on the topics explained in the lectures regarding Part I, given by the Area of Edaphology, as demonstrated in a short-questions exam.	26	A1	B3 B5	C13 C15 C22 C32 D1 D2 D3 D4 D6 D10 D12 D13 D16 D17	
Lecturing	The assessment of this part will be based on the knowledge the student has acquired on the topics explained in the lectures regarding Parts II, III and IV, given by the Area of Ecology, as demonstrated in a short-questions exam.	39	A1	B3 B5	C13 C15 C22 C32 D1 D2 D3 D4 D6 D10 D12 D13 D16 D17	

### Other comments on the Evaluation

It is required to obtain a minimum score of 5 (out of 10) in each of the main parts of the subject (final exam and mentored work) in order to pass the subject. In case this score is not reached in any of the parts, the final mark will be that of the lower score. Attendance to the practical classes (field trip, computer sessions and problem solving classes) is compulsory.

In calls other than the first the marks will be based on an exam only. The scores obtained in the assignments will only be kept for the second call.

Students that do not attend the exam will be considered as missing the call, regardless whether they completed the assignments.

Exam dates: please check the following link: <http://bioloxia.uvigo.es/es/docencia/examenes>

### Sources of information

#### Basic Bibliography

#### Complementary Bibliography

Ausden, Malcolm, **Habitat management for conservation : a handbook of techniques**, 2007,

Calviño Cancela, María, **Conservación de espacios protegidos**, Ecología, Conservación I,

Eagles, Paul F. J., **Turismo sostenible en áreas protegidas: directrices de planificación y gestión.**

Lucas, P. H. C., **Protected landscapes : a guide for policy-makers and planners**, Chapman & Hall,

Mitsch & Jorgensen, **Ecological Engineering and Ecosystem Restoration**,

Shafer, Craig L., **Nature reserves : island theory and conservation practice**, Smithsonian Institution Press,

Thomas & Packham, **Ecology of Woodlands and Forests**,

Dudley, N., **Directrices para la aplicación de las categorías de gestión de áreas protegidas**,

Begon, M.; Harper, J.L.; Townsend, C.R., **Ecología**,

Bennet, A.F., **Enlazando el paisaje. El papel de los corredores y la conectividad en la conservación de la vida silvestre**,

Chape, S.; Spalding, M.; Jenkins, M., **The world's protected areas. Status values and prospects in the 21st century**,

Hunter, M.L.; Gibbs, J., **Fundamentals of conservation biology**,

Primack, R.B.; Ros, J., **Introducción a la biología de la conservación**,

Sodhi, Navjot S., Ehrlich, Paul R., **Conservation Biology for all**,

Whittaker, J.; Fernandez-Palacios, J.M., **Island biogeography. Ecology, evolution and conservation**,

Sutherland, William; Hill, David, **Managing Habitats for Conservation**,

Richard J. Hobbs, Eric S. Higgs, Carol M. Hall, **Novel ecosystems : intervening in the new ecological world order**, 2013

## Recommendations

### Subjects that are recommended to be taken simultaneously

Environmental analysis and diagnosis/V02G030V01902

Biodiversity: management and conservation/V02G030V01905

Environmental impact evaluation/V02G030V01904

### Subjects that it is recommended to have taken before

Ecology I/V02G030V01501

Ecology II/V02G030V01601