



## IDENTIFYING DATA

### Sustainable Development

Subject	Sustainable Development			
Code	V02M123V01207			
Study programme	(*)Máster Universitario en Ciencias Biológicas: Biología Molecular, Computacional e Ambiental e Bio-Industrias			
Descriptors	ECTS Credits	Type	Year	Quadmester
	6	Optional	1st	2nd
Language				
Department				
Coordinator	Pedrol Bonjoch, María Nuria			
Lecturers	Pedrol Bonjoch, María Nuria Simal Gándara, Jesús			
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Web				
General description				

## Competencies

Type A	Code	Competences Specific
	A1	(*)To know the scientific method and the correct use of the scientific terminology as well as to acknowledge the contribution that scientific research provides to the overall knowledge and professional practice.
	A2	(*)Ability to describe and to analyse biological diversity, the mechanisms determining the interactions with the biotic and abiotic environment and being able to select those which might have technical applications.
	A3	(*)Ability to manage and/or to develop basic tools for validating and analysing data by means of statistics and bioinformatics.
	A4	(*)To know the ethical and legal aspects governing the collection and the handling of biological samples, organisms and habitats.
	A5	(*)Ability to design, evaluate and implement models of biological structures, systems and processes.
	A6	(*)To learn the sampling techniques and the instrumental methodologies, in the field and laboratory, for their application in the Biological Sciences
	A7	(*)To have an integrated view of the R&D processes and their possible transfer to the industrial sector. Planning and supervising facilities together with managing their human and economic resources.
	A8	(*)Ability to classify, evaluate, conserve, restore and manage natural and productive systems. Developing and implementing land management and sustainability plans.
	A9	(*)To understand and know how to apply quality control systems and safety protocols in any biological laboratory of the public or private sector.
	A10	(*)To acquire the professional ability to teach and spread Biology and to offer expertise advice for elaborating scientific, technical and socioeconomic biology reports. Address environmental consulting.
	A11	(*)To perform an individual Master Project (critical and in-depth study) under the supervision of a tutor in a research or working environment demonstrating that skills have been acquired.

## Type B Code Competences Transversal

B1	(*)Dissemination of results and conclusions of the biological studies, in oral and written English, through complex presentations that address ideas related with R&D in Biology.
B2	(*)Managing computational, laboratory, field and industrial techniques in order to obtain, process and apply the acquired information.
B3	(*)Disseminating and broadcasting ideas in contexts both academic and non-specialised.
B4	(*)Reflecting on social and ethical responsibilities.

## Learning aims

Subject competences	Typology	Competences
(*)Ability to manage and/or to develop basic tools for validating and analysing data by means of statistics and bioinformatics.	know	A3
(*)Ability to classify, evaluate, conserve, restore and manage natural and productive systems. Developing and implementing land management and sustainability plans.	Know How	A8
(*)To acquire the professional ability to teach and spread Biology and to offer expertise advice for elaborating scientific, technical and socioeconomic biology reports. Address environmental consulting.	Know How Know be	A10

## Contents

Topic	
Concepts of sustainability development, and of the quality and health of ecosystems.	Examples of different matrices. Cooperative learning.
Indicators of quality and sustainability for different ecosystems.	Examples of different matrices. Cooperative learning.
Anthropogenic activities that influence the sustainable use of natural resources.	Examples of different activities (industry, minery, agriculture). Cooperative learning.
Ecosystem services for community.	Brainstorm. Cooperative learning.
Policies and plans of sustainable management in ecosystems.	Exploration of web resources. Cooperative learning.

## Planning

	Personalized attention	Assessment	Ordinary class hours A	Face-to-face hours outside the classroom Guided academic environment B	Student's work factor C	Outside the classroom hours D	Total hours (A+B+D) E
Seminars	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	0	3	15	20
Case studies / analysis of situations	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10	0	5	50	60
Classroom work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10	0	3	30	40
Master Session	<input type="checkbox"/>	<input type="checkbox"/>	5	0	5	25	30
Total hours E:							150
Work load in UVIGO ECTS credits:							6

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

## Methodologies

	Description
Seminars	Managing web resources of Sustainable Development
Case studies / analysis of situations	Selecting from a proposed list of cases, cooperative learning following the methodology of Project Based Learning.
	Virtual forum participation

Classroom work Managing web resources for policies and plans of sustainable management in ecosystems.

Planing case studies / analyses of situations

Master Session Learning and understanding the necessary concepts and contents to face case studies on Sustainable Development. Feedback.

### Personalized attention

Description

Seminars Personalized attention and assesment in all the classroom and outside the classroom activities. Online attention via e-mail is also offered.

Case studies / analysis of situations Personalized attention and assesment in all the classroom and outside the classroom activities. Online attention via e-mail is also offered.

Classroom work Personalized attention and assesment in all the classroom and outside the classroom activities. Online attention via e-mail is also offered.

### Assessment

Description

Qualification

Seminars Attendance, attitude, implication and delivery of reports. 30

Case studies / analysis of situations Implication, management of scientific sources, quality of the report. 50

Classroom work Participation, originality and dynamics of the Virtual Forums. 20

### Other comments and second call

### Sources of information

Web sites:

<http://sustainabledevelopment.un.org/>

<http://www.iisd.org/sd/>

<http://www.sd-commission.org.uk/>

<http://www.worldbank.org/depweb/english/modules/index.html>

<http://ec.europa.eu/environment/eussd/>

Reviews to think (examples):

Pretty, J., Sutherland, W. J., Ashby, J., Auburn, J., Baulcombe, D., Bell, M., ... & Toulmin, C. (2010). The top 100 questions of importance to the future of global agriculture. *International journal of agricultural sustainability*, 8(4), 219-236.

David E. Ervin, Leland L. Glenna and Raymond A. Jussaume (2010). Are biotechnology and sustainable agriculture compatible?. *Renewable Agriculture and Food Systems*, 25, pp 143-157.

Maghari, B. M., & Ardekani, A. M. (2011). Genetically modified foods and social concerns. *Avicenna journal of medical biotechnology*, 3 (3), 109.

### Recommendations

#### Subjects that are recommended to be taken simultaneously

Biodiversity/V02M123V01108

Glogal Change and Adaptation/V02M123V01205

Restoration and Environmental Policy/V02M123V01208