Teaching Guide				
Identifying Data				2018/19
Subject (*)	Ecology I: Individuals and Ecosystems		Code	610G02039
Study programme	Grao en Bioloxía			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	Third	Obligatory	6
Language	SpanishEnglish			
Teaching method	Face-to-face			
Prerequisites				
Department	Bioloxía			
Coordinador	Rodríguez Roiloa, Sergio	E-mail	sergio.roiloa@udc.es	
Lecturers	Barrientos De La Llana, Sara	E-mail	sara.barrientos@udc.es	
	Martínez Abraín, Alejandro		a.abrain@udc.es	
	Rodríguez Roiloa, Sergio		sergio.roiloa@udc.es	
	Ruiz De la Rosa, Jose Miguel		jose.miguel.ruiz.delarosa@udc.es	
Web				
General description	Distribution patterns : the individual and the environment. The ecosystem.			

Study programme competences / results	
Code	Study programme competences / results
A1	Recoñecer distintos niveis de organización nos sistemas vivos.
A17	Realizar bioensaios e diagnósticos biolóxicos.
A20	Muestrear, caracterizar e manexar poboacións e comunidades.
A21	Deseñar modelos de procesos biolóxicos.
A24	Xestionar, conservar e restaurar poboacións e ecosistemas.
A26	Deseñar experimentos, obter información e interpretar os resultados.
A30	Manexar adecuadamente instrumentación científica.
B4	Traballar de forma autónoma con iniciativa.
B6	Organizar e planificar o traballo.
B7	Comunicarse de maneira efectiva nunha contorna de traballo.
B8	Sintetizar a información.
B12	Adaptarse a novas situacións.

Learning outcomes			
Learning outcomes	Study programme competences / results		
To describe ecological concepts at the individual, population, community and ecosystem level.	A1 A24		
To discuss ecological concepts by critically considering the evidences in support.		B8	
To face with some success the specialised literature.	A30		
To use some basic techniques from the vast ecological methodology.	A17 A20 A21 A26 A30	B4 B6 B7 B12	

Contents	
Topic	Sub-topic

Section 1. Ecology and evolution	Unit 1. Introduction to ecology Unit 2. Natural selection
Section 2. Individuals and environment	Unit 3. The physical environment: land and water Unit 4. Plant adaptations to the environment Unit 5. Animal adaptations to the environment
Section 3. The ecosystem	Unit 6. The ecosystem and its functioning Unit 7. Production Unit 8. Energy flow Unit 9. Decomposition and nutrient cycling Unit 10. Global cycles

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12	24	62.4	86.4
Laboratory practice	A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12	15	15	30
Seminar	A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12	8	20.8	28.8
Objective test	A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12	3	0	3
Personalized attention		1.8	0	1.8
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	Oral presentations to transfer knowledge and ease learning. Most of the graphical support of presentations is available in the virtual campus (Moodle).
Laboratory practice	For the students to learn effectively through the completion of practical activities in the field and/or in the laboratory.
Seminar	Demonstration and study of numerical models for a better understanding and resolution of ecological problems. Most models will be worked with Faculty PCs if students have no portables.
Objective test	Written exam on all aspects of the matter: theory, practicals and seminars.

Personalized attention	
Methodologies	Description
Objective test Guest lecture / keynote speech Laboratory practice Seminar	Preparation, explanation and revision of exams. Elucidation of possible doubts emerging as the matter is developed. Orientation and tuition to make the most of practicals. Orientation and tuition to make the most of seminars.

Assessment

Methodologies	Competencies / Results	Description	Qualification
Objective test	A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12	Written exam on all aspects of the matter: theory, practicals and seminars (see Assessment comments).	100
Others			

Assessment comments
One and only exam (but 2 opportunities) on all and every part: theory, practicals (P) and seminars (S). Weight proportional to contribution to time planning: 60%, 20% y 20% (respectively). All 3 parts are to be passed simultaneously, but compensation possible if one part > 4/10. Attendance not compulsory, but for P and S it?ll be recorded. Students can voluntarily present at the deadline of the exam day a paper personal copybook on the work developed in all 8 S and/or all 3 P classes; main text must be manuscript (by hand) and the whole should be easily readable. Guides will be available in Moodle and the marks on these workbooks may help overcome insufficiencies in the corresponding exam. Copybooks can be drafted in pairs or groups, but the final result is not to be cloned: they must reflect individual work and interpretation. Both copybooks are needed to get the top mark (Honours).

Sources of information	
Basic	- Alstad DN (2001). Basic Populus models of ecology. New Jersey: Prentice-Hall - Alstad DN (). www.cbs.umn.edu/populus. - Begon M, Harper JL & Townsend CR (1999). Ecología: individuos, poblaciones y comunidades. Barcelona: Omega - Krebs CJ (1986). Ecología: el análisis experimental de la distribución y la abundancia. Madrid: Pirámide - Piñol J & Martínez-Vilalta J (2006). Ecología con números. Barcelona: Lynx - Piñol J & Martínez-Vilalta J (). www.ecologiaconnumeros.uab.es. - Ricklefs RE (1998). Invitación a la ecología: la economía de la naturaleza. Madrid: Panamericana - Smith RL & Smith TM (2000). Ecología. Madrid: Pearson - Smith TM, Smith RL (2015). Elements of Ecology. Pearson - Molles M (2013). Ecology: concepts and applications. McGraw Hill - Molles M (2006). Ecología: Conceptos y Aplicaciones. McGraw Hill Unha das referencias básicas para os seminarios é a de Piñol & Martínez-Vilalta (EC-650). Os modelos contidos no CD que inclúe o libro están tamén dispoñibles na súa web. Do enlace de Alstad pódese descargar libremente o programa "Populus", con modelos de bioloxía xeral e para algúns seminarios en particular. Inclúe un PopulusHelp.PDF (parcialmente en castelán) que foi editado como libro en 2001 (EC-505). Hai edicións mais recentes das demais referencias básicas.
Complementary	- Gotelli NJ (1995). A primer of ecology. Sunderland: Sinauer - Margalef R (1974). Ecología. Barcelona: Omega - Odum EP, Barret GW (2006). Fundamentos de ecología. Mexico: Thomson Hai edicións mais recentes destas referencias complementarias.

Recommendations
Subjects that it is recommended to have taken before
Chemistry/610G02001 Mathematics/610G02003 Statistics/610G02005 Physical Geography/610G02006
Subjects that are recommended to be taken simultaneously

Applied Plant Physiology /610G02029
Animal Physiology I/610G02035
Subjects that continue the syllabus
Ecology II: Populations and Communities/610G02040
Human Ecology/610G02041
Ecotoxicology/610G02042
Data Analysis in Biology/610G02044
Other comments
Understanding rather than memorization is favored.

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.