



Teaching Guide

| Identifying Data | | | | | 2020/21 |
|---------------------|--|--------|---|---------|---------|
| Subject (*) | Ecology I: Individuals and Ecosystems | Code | 610G02039 | | |
| Study programme | Grao en Biología | | | | |
| Descriptors | | | | | |
| Cycle | Period | Year | Type | Credits | |
| Graduate | 1st four-month period | Third | Obligatory | 6 | |
| Language | SpanishEnglish | | | | |
| Teaching method | Hybrid | | | | |
| Prerequisites | | | | | |
| Department | Biología | | | | |
| Coordinador | Martínez Abraín, Alejandro | E-mail | a.abrain@udc.es | | |
| Lecturers | Martínez Abraín, Alejandro Ruiz De la Rosa, Jose Miguel | E-mail | a.abrain@udc.es jose.miguel.ruiz.delarosa@udc.es | | |
| Web | | | | | |
| General description | Distribution patterns : the individual and the environment. The ecosystem. | | | | |
| Contingency plan | <p>1. Modifications to the contents</p> <ul style="list-style-type: none">-No changes <p>2. Methodologies</p> <ul style="list-style-type: none">*Teaching methodologies that are maintained-Supervised work-Individualized supervision*Teaching methodologies that are modified-All activities that required attendance will be moved to virtual tele-teaching (seminars/practicums).-Teaching of theory will all be implemented via Teams. <p>3. Mechanisms for personalized attention to students</p> <ul style="list-style-type: none">-Email (upon demand)-Moodle(daily)-Teams (weekly group meetings) <p>4. Modifications in the evaluation</p> <ul style="list-style-type: none">*Evaluation observations:-Partial exams experience no changes.-Final exam would be implemented via Moodle (multiple-choice).-Assignments will be handed in electronically. <p>5. Modifications to the bibliography or webgraphy</p> | | | | |



| 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 evidence in support of them. | | 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 (2h) | Unit 1. An introduction to ecology and evolution |
| Section 2. The individual and the environment (10h) | Unit 2: Overview of the individual-environment relationship Unit 3: Responses and adaptations to the abiotic environment (temperature) Unit 4: Responses and adaptations to the abiotic environment (light) Unit 5: Responses and adaptations to the abiotic environment (water). Unit 6: Nutrition in animals and plants Unit 7: The biotic component of the medium Unit 8: Dispersion in Animals and Plants |
| Section 3. The ecosystem (12h) | Unit 9: An introduction to the ecosystem and its functioning Unit 10: Production in ecosystems Unit 11: Energy flows but matter cycles in ecosystems Unit 12: Biogeochemical 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 | 60 | 84 |



| | | | | |
|---------------------------|--|----|----|----|
| 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 | 8 | 16 |
| Multiple-choice questions | A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12 | 0 | 1 | 1 |
| Case study | A1 A17 A20 A21 A24 A26 A30 | 0 | 14 | 14 |
| Objective test | A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12 | 3 | 0 | 3 |
| Personalized attention | | 2 | 0 | 2 |

(*)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 facilitate 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 executed with UDC PCs if students do not have their own laptops. |
| Multiple-choice questions | Partial examination of the subject (mid-term). One or two mid-terms will take place during the course. They will not be eliminatory but together they will count 30% of the final grade. The multiple-choice partial exams (mid-terms) will be carried out via the Moodle platform. |
| Case study | Reports of the activities carried out in Seminars and Practicums. |
| Objective test | Written exam on all sections of the course: theory, practicals and seminars. |

| Personalized attention | |
|--------------------------------|--|
| Methodologies | Description |
| Objective test | Preparation, explanation and revision of exams. Elucidation of possible doubts emerging as the subjects are implemented. |
| Guest lecture / keynote speech | Orientation and tuition to make the most of practicals. |
| Laboratory practice | |
| Seminar | Orientation and tuition to make the most of seminars. |
| Multiple-choice questions | |
| Case study | |

| Assessment | | | |
|---------------------------|--|--|---------------|
| Methodologies | Competencies / Results | Description | Qualification |
| Objective test | A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12 | Final written exam of the contents of the ENTIRE subject: theory, practices and seminars (see observations). 50% | 50 |
| Multiple-choice questions | A1 A17 A20 A21 A24 A26 A30 B4 B6 B7 B8 B12 | Partial exam/s or mid-terms of the subject developed throughout the course (see observations) 30% | 30 |



| | | | |
|------------|-------------------------------|---|----|
| Case study | A1 A17 A20 A21 A24 A26 A30 | Reports of the activities developed in Seminars and Practices (see observations). 20% | 20 |
| Others | | | |

Assessment comments

The final grade will be a consequence of the global results obtained in all the evaluation activities, which will include the three parts of the subject: Theory, Seminars and Practices, with a contribution to the final grade proportional to its contribution in time planning, that is to say , 60% Theory, 20% Seminars and 20% Practices. All students will have two opportunities to pass the course.

In the first opportunity, a continuous evaluation will be carried out, including deliverables (assignments), partial tests (mid-terms) and a final exam (on a date set by the Faculty Board), with the following weighting:

60% Theory (30% of partial tests (mid-terms) + 30% final exam)

20% Seminars (10% deliverables + 10% final exam)

20% Practices (10% deliverables + 10% final exam)

In the case of the second opportunity, there will be a single final exam (on a date set by the Faculty Board) that will include questions on the three parts of the subject with the following weighting:

60% Theory

20% Seminars

20% Practices

Both in the first and in the second opportunities it is necessary to pass each and every one of the three parts simultaneously (Theory, Seminars and Practices) to pass the subject. A failed part may be compensated with others if its grade is at least 4/10. The average grade to pass the course must be a 5.0 out of 10. Those students who submit and/or attend any of the continuous assessment activities will be considered as presented (attended), receiving the corresponding grade for the work submitted and/or tests carried out according to their weighting, and a grade of zero in those works and/or tests in which they have not been presented (not attended). In case of not submitting assignments or not taking any of the tests, they will be considered as not presented.

Attendance at Seminars and Practices is not mandatory, but will be recorded.

Deliverable elements of Seminars and Practices (assignments) will consist of a report of the activities carried out in Seminars and Practices. Said reports will be made and delivered following the indications given by the professor on the first lecture (format, content, deadlines, etc.) and their qualification will be subject to individual oral examination, if necessary. These reports must be done by hand individually and collect the work of each student as well as their personal interpretation. The reports of seminars and practices will be corrected and returned to the students before the corresponding assessment tests and will be delivered for deposit until the end of the following academic year (according to current regulations), at the time of the final exam.

The achievement of the honors mark (maximum qualification) will require a final grade of at least 9.0 and the delivery of all deliverable elements (assignments or reports) of the course.

The exams for the English group will be prepared and graded independently by the professor in charge of that group.

Students with officially recognized academic permission not to attend lectures, seminars and/or practicums will be able to carry out the proposed (or equivalent) activities by means of tutoring (either onsite or online).

Sources of information



| | |
|-----------------------------|--|
| <p>Basic</p> | <ul style="list-style-type: none"> - 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 - 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 - Rodríguez J (2010). Ecología. Pirámide - Smith TM & Smith RL (2007). Ecología. Madrid: Pearson <p>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). Pode haber edicións mais recentes das demais referencias básicas.</p> |
| <p>Complementary</p> | <ul style="list-style-type: none"> - Gotelli NJ (1995). A primer of ecology. Sinauer - Krebs CJ (1986). Ecología: el análisis experimental de la distribución y la abundancia. Pirámide - Margalef R (1974). Ecología. Barcelona: Omega - Molles M (2006). Ecología: Conceptos y Aplicaciones. McGraw Hill - Odum EP, Barret GW (2006). Fundamentos de ecología. Mexico: Thomson <p>Pode haber edicións mais recentes destas referencias complementarias.</p> |

Recommendations

Subjects that it is recommended to have taken before

Chemistry/610G02001

Mathematics/610G02003

Statistics/610G02005

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.