



Teaching Guide

| Identifying Data | | | | | 2021/22 |
|--------------------------|--|--------|--|---------|---------|
| Subject (*) | Ecology and Biomonitorization | Code | 610500007 | | |
| Study programme | Mestrado Universitario en Ciencias, Tecnoloxías e Xestión Ambiental (plan 2012) | | | | |
| Descriptors | | | | | |
| Cycle | Period | Year | Type | Credits | |
| Official Master's Degree | 1st four-month period | First | Optional | 3 | |
| Language | SpanishEnglish | | | | |
| Teaching method | Face-to-face | | | | |
| Prerequisites | | | | | |
| Department | BioloxíaEnxeñaría Naval e IndustrialFísica e Ciencias da Terra | | | | |
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| Web | | | | | |
| General description | Ecology and evolution. Population dynamics. Organization of communities. Flows of matter and cycles of energy. The case of tributyl tin (TBT) of antifouling paints: environmental history and biomonitoring in Galicia. Paleoecology and biomonitoring. | | | | |
| Contingency plan | <p>1. Changes in content Without changes.</p> <p>2. Methodologies * Teaching methodologies that are maintained Master session. The expository classes would be maintained, but would be taught by Teams. Practices through ICT. The practical classes would be maintained. Since all the software used is freely available and / or executable via the web, students would carry out these practices remotely. For this they would have the relevant scripts and all the necessary protection (see below on personalized attention). Objective proof. The final exam is maintained, but it would become a multiple choice test via Moodle. Alternatively, the aforementioned test-type examination could be replaced by the individual answer of objective questions. These responses will be handwritten, scanned or photographed face to face to create PDFs that will be sent to the teacher in charge of their correction, attached by email.</p> <p>* Teaching methodologies that are modified: none.</p> <p>3. Mechanisms for personalized attention to students Attention to student demand, either by email, Moodle or Teams.</p> <p>4. Modifications in the evaluation Without changes. * Evaluation observations: Given the usual schedule for this module, continuous evaluation is ruled out. Thus, 100% of the rating is based on an objective test (see above on its methodology).</p> <p>5. Modifications of the bibliography or webgraphy Without changes.</p> | | | | |

Study programme competences

| Code | Study programme competences |
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| A1 | Coñecemento das realidades interdisciplinares da Química e do Medio Ambiente, dos temas punteiros nestas disciplinas e das perspectivas de futuro. |



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| A6 | Coñecemento do comportamento de diferentes especies químicas e dos procesos aos que poden estar sometidas unha vez liberadas no medio ambiente, incluíndo as súas relacións entre distintos compartimentos ambientais. |
| A10 | Relacionar a presenza de especies químicas no medio natural cos conceptos de toxicidade e biodisponibilidade. |
| A13 | Comprender os procesos de bioacumulación e as técnicas de biomonitorización e biomarcaxe. |
| B1 | Posuír e comprender coñecementos que acheguen unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, a miúdo nun contexto de investigación. |
| B5 | Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun modo que haberá de ser en gran medida autodirixido ou autónomo. |
| B8 | Comprender, a un nivel especializado, as consecuencias do comportamento humano na contorna ambiental. |
| C6 | Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida. |

| Learning outcomes | | | |
|---|-----------------------------|------------|-----|
| Learning outcomes | Study programme competences | | |
| Describe and discuss ecological concepts at the individual, population and community level | AC1 | BC1 BC8 | |
| Use some basic techniques of the broad ecological methodology | | BC5 | CC6 |
| Understand the results of basic ecotoxicology techniques | AC6 AC10 AC13 | | |
| Understanding the relevance of the sedimentary registry to define ecological reference conditions | | BC5 | CC6 |

| Contents | |
|---------------------------------------|--|
| Topic | Sub-topic |
| Ecology: theory | Ecology and evolution. Population dynamics. Organization of communities. Matter flows and energy cycles. Gaia Hypothesis. |
| Ecology: practices | Population dynamics: competition and predation. Spatial dynamics: metapopulations. |
| The case of TBT of antifouling paints | Environmental history. Biomonitoring in Galicia. |
| Paleoecology and biomonitoring | Theory and practices. |

| Planning | | | | |
|--------------------------------|------------------------------|----------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies | Ordinary class hours | Student's personal work hours | Total hours |
| Guest lecture / keynote speech | A1 A6 A10 A13 B1 B8 | 12 | 36 | 48 |
| ICT practicals | B5 C6 | 8 | 16 | 24 |
| Objective test | A1 A6 A10 A13 B1 B5 B8 C6 | 1 | 0 | 1 |
| 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 | Summary presentation of the contents available via Moodle (or virtual classroom). |



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| ICT practicals | The practices will be held in Aula Informática with the simulation programs available in the Faculty and others via the web. |
| Objective test | Written examination on the matter exposed and / or practiced. |

Personalized attention

| Methodologies | Description |
|---|---|
| Guest lecture / keynote speech ICT practicals Objective test | The theoretical and practical sessions include tutoring sessions and personalized attention |

Assessment

| Methodologies | Competencies | Description | Qualification |
|-----------------------------------|------------------------------|---|---------------|
| Guest lecture / keynote speech | A1 A6 A10 A13 B1 B8 | Discussion in class about the theoretical contents of different disciplines. | 1 |
| ICT practicals | B5 C6 | Participation in practicals is compulsory, as well as to perform the exercises exposed in them. | 1 |
| Objective test | A1 A6 A10 A13 B1 B5 B8 C6 | Written exam. | 98 |
| Others | | | |

Assessment comments

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Sources of information

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| Basic | Begon, M., J. L. Harper, y C. R. Townsend (1999) Ecología. Individuos, Poblaciones y Comunidades. Omega, Barcelona (3ª edición inglesa). Ricklefs, RE (1998) Invitación a la Ecología: La Economía de la Naturaleza. 4ª ed. Editorial Médica Panamericana, Buenos Aires, Argentina. Smith, RL. y Smith, T.M. (2000) Ecología. 4ª ed. Pearson Educación, SA. Madrid. de Mora, SJ (1996). Tributyltin: case study of an environmental contaminant. In: Campbell PGC, Galloway JN, Harrison RM (eds) Cambridge Environmental Chemistry Series No. 8. Cambridge University Press, Cambridge. Smol, J.P. 2002. Pollution of Lakes and Rivers. A Palaeoenvironmental Perspective. Arnold Publishers, London, 280 pp. |
| Complementary | La bibliografía básica es suficiente para un módulo de estas dimensiones. |

Recommendations

Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously

Subjects that continue the syllabus

Other comments

This module is integrated with the others within the master.

(*)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.