UNIVERSIDADE DA CORUÑA

| Teaching Guide | | | | | |
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| Identifying Data | | | | | 2022/23 |
| Subject (*) | Introduction to Botany: General Botany | | | Code | 610G02023 |
| Study programme | Grao en Bioloxía | | | | |
| Descriptors | | | | | |
| Cycle | Period | Year | | Type | Credits |
| Graduate | 1st four-month period | First | | Obligatory | 6 |
| Language | SpanishGalicianEnglish | | | | |
| Teaching method | Face-to-face | | | | |
| Prerequisites | | | | | |
| Department | Bioloxía | | | | |
| Coordinador | Leira Campos, Antón Manoel | | E-mail | m.leira@udc.es | |
| Lecturers | Fagúndez Díaz, Jaime<br>Leira Campos, Antón Manoel<br>Pimentel Pereira, Manuel<br>Piñeiro Portela, Rosalía<br>Sahuquillo Balbuena, Elvira | | E-mail | jaime.fagundez@udc.es<br>m.leira@udc.es<br>m.pimentel@udc.es<br>rosalia.pineiro@udc.es<br>elvira.sahuquillob@udc.es | |
| Web | http://campusvirtual.udc.es/moodle/ | | | | |
| General description | Introduction to Botany, the science which studies the different organisms traditionally included under the label "plants". It integrates information from a wide variety of disciplines, including physiology, plant anatomy and histology, biochemistry, genetics, ecology, etc. The students will acquire knowledge and skills useful for different professional activities, including research, teaching, environmental consultancy, agronomy, ethnobotany, etc. | | | | |

| Study programme competences | |
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| Code | Study programme competences |
| A1 | Recoñecer distintos niveis de organización nos sistemas vivos. |
| A2 | Identificar organismos. |
| A4 | Obter, manexar, conservar e observar especímenes. |
| A7 | Reconstruír as relacións filogenéticas entre unidades operacionales e pór a proba hipóteses evolutivas. |
| A19 | Analizar e interpretar o comportamento dous seres vivos. |
| A22 | Describir, analizar, avaliar e planificar o medio físico. |
| A29 | Impartir coñecementos de Bioloxía. |
| A30 | Manexar adecuadamente instrumentación científica. |
| A31 | Desenvolverse con seguridade nun laboratorio. |
| A32 | Desenvolverse con seguridade no traballo de campo. |
| B1 | Aprender a aprender. |
| B6 | Organizar e planificar o traballo. |
| B8 | Sintetizar a información. |
| B12 | Adaptarse a novas situacións. |

| Learning outcomes | | | |
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| Learning outcomes | Study programme competences | | |
| - Learning basic techniques of field- and laboratory work in Botany. | A4<br>A22<br>A30<br>A31<br>A32 | B1<br>B8 | |

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| - Acquiring skills related to the observation, description and identification of fungi, algae and plants. | A1<br>A2<br>A4<br>A22 | B1<br>B6<br>B12 | |
| - Understanding the morphological and taxonomical diversity of fungi, algae and plants. | A1<br>A2<br>A29 | B1<br>B8 | |
| - Understanding the taxonomic organization and nomenclature of fungi, algae and plants. | A1<br>A2<br>A7 | B1<br>B8 | |
| - Understanding the evidences of the evolutionary relationships among the different fungi, algae and plants. | A1<br>A4<br>A7 | B1<br>B8<br>B12 | |
| - Understanding the different reproductive types and life cycles of the diverse organisms studied in Botany. | A4<br>A19 | B6<br>B8 | |
| - Encourage students to further learn and research about Botany, a basic discipline in Biology. | | B6<br>B12 | |
| -Being able to critically manage relevant information from different bibliographic sources. | A29 | B1<br>B8 | |
| Learning skills needed to undertake further studies | | B6<br>B8<br>B12 | |

| Contents | |
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| **Topic** | **Sub-topic** |
| BLOCK I: INTRODUCTION AND GENERAL CONCEPTS | I.1. Organisms studied in Botany.<br>I.2.. Acquisition of botanical knowledge.<br>I.3. Theories of evolution and botany. |
| BLOCK II: ORGANIZATION OF PLANTS AND FUNGI | II.1. Cell organization.<br>II.2. Organization in thallophytes.<br>II.3. Organization in cormophytes.<br>II.4. Plant tissue organization<br>II.5. The reproduction. Biological cycles. Reproductive ecology |
| BLOCK III: BIODIVERSITY AND EVOLUTION | III.1. The evolution in vegetables. Frame of vegetables in living things. Evolutionary relationships and importance of phylogeny. Characters and main groups<br>III.2. Morphological levels of plant organization. Evolution from talophytes to cormophytes<br>III.3. Photosynthetic coins and protists. Cyanobacteria and algae<br>III.4. Fungi and other heterotrophic organisms. Fungal symbioses<br>III.5. Plants without flowers. General characteristics of embryophytes. Vascular embryophytes. General characteristics and life cycle of pteridophytes<br>III.6. The prevascular vascular embryophytes. General characteristics and life cycle of bryophytes<br>III.7. Flowering plants. General characteristics and life cycle of spermatophytes<br>III.8. Gymnosperms and angiosperms (dicotyledons and monocotyledons) |
| BLOCK IV: ECOLOGY AND CONSERVATION | IV.1. Plant communities and populations. Interaction with other organisms<br>IV.2. floristic kingdoms and main veetation formations on Earth. Biomes. Vegetation of Galicia.<br>IV.3. Plant biodiversity. Threats and conservation strategies. |

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| SEMINARS | 1.- Classification and systematics.<br>2.- Life cycles of plants and fungi.<br>3.-Floral diagrams and formulas. Identification keys.<br>4.- Comparative studies of organism |
| LAB SESSIONS | 1.- Introduction of the local vegetal landscape, organographic study and field diagnosis of a selection of species. Collection and conservation methods.<br>2.- Characteristics and function of fungi and lichens. Observation of vegetative (mycelium) and reproductive structures in microscopic Zygomycetes and Ascomycetes. Recognition of fruiting bodies of Ascomycetes and Basidiomycetes. Morphological types of lichens and their habitat. Recognition of reproductive structures in lichens.<br>3.- Characteristics and function of microscopic algae. Microscope handling. Analysis of microscopic algae in inland waters (eutrophic or not). Study of algae in marine plankton.<br>4.- Characteristics and function of macroscopic algae. Observation of freshwater and marine representatives. Organization and morphology, reproductive structures and life cycle.<br>5.- Characteristics and function of bryophytes and pteridophytes. Study of diversity of representatives of bryophytes (liver and moss) and pteridophytes (ferns, horsetails and lycopods).<br>6.- Characteristics and function of gymnosperms. Observation of vegetative and reproductive characters. Recognition of species of gymnosperms (Pinaceae, Cupressaceae, Taxaceae) representative of the Iberian flora.<br>7.- The flower. Flower analysis. Morphological study of different types of flowers.<br>8.- Study of the characteristics and function of monocotyledonous angiosperms. Recognition of common species in the Iberian Eurosiberian environment.<br>9.- Study of the characteristics and function of dicotyledonous angiosperms. Recognition of common species in the Iberian Eurosiberian environment. |
| CASE STUDY | Create a photographic atlas of Botany, in an orderly and classified manner and preparing sheets of photographic composition of the vegetative and reproductive parts of the different plant groups |

| Planning | | | | |
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| Methodologies / tests | Competencies | Ordinary class hours | Student?s personal work hours | Total hours |
| Guest lecture / keynote speech | A1 A2 A7 A29 B1 B8 | 23 | 46 | 69 |
| Laboratory practice | A2 A4 A30 A31 | 20 | 20 | 40 |
| Seminar | B12 | 8 | 8 | 16 |
| Case study | A19 A22 A32 B6 | 0 | 18 | 18 |
| Mixed objective/subjective test | B8 | 2 | 0 | 2 |
| Objective test | B8 | 2 | 0 | 2 |
| Practical test: | B1 | 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 | |
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| Methodologies | Description |
| Guest lecture / keynote speech | Lecturers will explain the main concepts of the subject. Lecture notes will be uploaded. |
| Laboratory practice | The student will work with different kinds of living and preserved material, representative of the studied groups of the subject. |

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| Seminar | Lecturers will invite the students to work on specific aspects of the studied groups, and discussion will follow in seminars. |
| Case study | Realization of a photographic atlas as a valid strategy of research training that enable the theoretical-practical integration of previous knowledge with new computer technologies, to obtain meaningful learning. The work will be shared and put in common, and we will use self-assessment, co-assessment and instructor's assessment. |
| Mixed objective/subjective test | The final summative evaluation of the theoretical contents will be done through an objective writing test that will include multiple choice questions, definitions, short questions and topics to be elaborated. |
| Objective test | Test aimed at continuous evaluation. A statement is presented in the form of a question to be answered with a specific phrase, word, number or symbol. |
| Practical test: | Test in which the student is expected to solve a question/problem that has as a result of the knowledge learned in some practice that he would have previously done during the practical classes. |

| Personalized attention | |
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| **Methodologies** | **Description** |
| Seminar<br>Case study<br>Laboratory practice | Personalized attention will be given individually when direct feedback to the student so requires. In case of in-person situation, it will take place during the development of the tutorials of the subject. In the event of a non-contact situation, it will take place online, during pre-arranged tutorial hours, and via e-mail.<br>For students with recognition of part-time dedication and academic exemption from attendance, specific tutorials will be agreed at the beginning of the course, either to attend or arranged electronically via email, and that are compatible with their dedication.<br>Gender discrimination will be avoided and actions and measures will be proposed to correct them. Non-sexist language will be used, intervention in class by students will be encouraged.<br>The integration of students who, due to physical, sensory, mental or sociocultural reasons, experience difficulties in passing the subject, through the appropriate aids, will be facilitated. |

| Assessment | | | |
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| **Methodologies** | **Competencies** | **Description** | **Qualification** |
| Case study | A19 A22 A32 B6 | At the beginning of the course, students are informed of the activity to be carried out throughout the course, which can be both individual and group. The content, quality and presentation of the activity will be qualified. | 15 |
| Mixed objective/subjective test | B8 | Final test that integrates essay-type questions and objective test-type questions. As for essay questions, collect open development questions. In addition, as objective questions, you can combine multiple choice, ordering, short answer, discrimination, completion and/or association questions. | 40 |
| Objective test | B8 | Written test used for the continuous evaluation. It facilitates determining whether the answers given are correct or not. It constitutes a measurement instrument, rigorously elaborated, that allows evaluating knowledge, abilities, skills, performance, aptitudes, attitudes, intelligence, etc. It is applicable for both diagnostic, formative and summative evaluation. | 20 |
| Laboratory practice | A2 A4 A30 A31 | Resolution of questionnaires and the submission of practical reports. Content and quality will be graded. | 5 |
| Practical test: | B1 | Final test that consists of the resolution of a question/problem that is related to the practical classes. | 20 |

| Assessment comments |
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In order to pass the subject at the first opportunity it will be necessary to have a participation of at least 70% of the scheduled evaluable activities. Likewise, the student must obtain at least a grade of 4.5 out of 10 points in theory, and 4 out of 10 in the practical part.
In order to pass the subject in the second opportunity (July), the student, depending on the result of his first assessment, will have to take a written objective test and pass the practical part. The need to take one or both of the second-chance examinations will be indicated in the first opportunity grades.
The qualifications obtained in the evaluable activities will be kept only during the corresponding academic year except for the practical part. To obtain the qualification of "not presented" the student will not be able to participate in more than 30% of the scheduled assessable activities. In the case of students with part-time dedication or specific learning modalities and support for diversity, the assessment of the objective tests will be the same, and the continual assessment of participation may be replaced by an individual work proposed by the teacher and evaluated in tutorials. In the case of students with recognition of part-time dedication and academic exemption from attendance, the same evaluation criteria will be followed for the 1st and 2nd opportunity as for the rest of the students.
Fraud on the tests or assessment activities will directly imply the grade of failed '0' in the subject in the corresponding opportunity, invalidating like this any grades obtained in all the assessment activities towards the extraordinary announcement.

| Sources of information | |
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| Basic | Teoría:BARNES, C. (2001). Invitación a la Biología. PanamericanaDIAZ-GONZALEZ, T.E.; FERNÁNDEZ-CARVAJAL, M.C. & FERNÁNDEZ, J. A.(2004). Curso de Botánica. Ediciones Trea, Gijón.FONT I QUER, P. (1982). Iniciación a la Botánica. Editorial Fontalba.FONT I QUER (1987). Plantas medicinales. El Dioscórides renovado. Labor.FONT I QUER, P. (1993). Diccionario de Botánica. Labor, Barcelona.IZCO, J.; BARRENO, E.; BRUGUÉS, M.; COSTA M.; DEVESA, J.; FERNÁNDEZ, F.; GALLARDO, T.; LLIMONA, X; SALVO, E; TALAVERA, S. & VALDÉS, B. (2004). Botánica. McGraw-Hill, Madrid.NABORS, M.W. (2006). Introducción a la Botánica. Pearson.REECE, C. et al. (2008). Biology. Pearson International EditionSCAGEL, R.; BANDONI,R.J.; ROUSE,G.E.; SCHOFIELD, G.E.; STEIN,J.R. & TAYLOR,T.M.(1987). El Reino Vegetal. Omega, Barcelona.STRASBURGER, E., F. NOLL, H. SCHENCK & A.F.W. SCHIMPER. (2004). Tratado de Botánica (actualizado por P. SITTE et al.) Omega, Barcelona. Prácticas: |
| Complementary | ENNOS R. & E. SHEFFIELD (2000) Plant life. Blackwell Science Ltd.FUENTES YAGÜE J.L. (2006) Iniciación a la botánica. Madrid: Mundi-Prensa.HICKEY M & C.J. KING (2000) The Cambridge illustrated glossary of botanical terms. Cam-bridge Univ. Press Cambridge.KAUFMAN P.B. T.F. CARLSON P. DAYANANDAN M. L. EVANS J.B. FISHER C. PARKS& J. R. WELLS (1989) Plants: Their Biology and Importance. Harper & Row Pub. New York.MAUSETH J.D. (2003). Botany. An introduction to Plant Biology. Jones & Bartlett. Sundbury.RAVEN et al. (1991) Biolog??a de las plantas.ROBERTS K. (2007). Handbook of plant science. Chichester: John Wiley & Sons.SEGURA MUNGUÍA S. (2009) Historia de las plantas en el mundo antiguo. Bilbao: Universidadde Deusto, Madrid: Consejo Superior de Investigaciones Cient??ficas.SMITH A.M. G. COUPLAND L. DOLAN N. HARBERD J. JONES C. MARTIN R. SABLOWS-KI & A. AMEY. (2010). Plant Biology. Garland Science. Abingdon. |

| Recommendations |
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| Subjects that it is recommended to have taken before |
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| Subjects that are recommended to be taken simultaneously |
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| Subjects that continue the syllabus |
| Plant Systematics: Cryptogamia/610G02024<br>Plant Systematics: Phanerogamia/610G02025<br>Botanical Geography: Geobotany/610G02026 |
| Other comments |

? Carefully read the text and the assigned additional readings before the corresponding talk.? Attend all classes and actively participate in discussions, interactive questions and activities. Some research has shown a 2% lower grade for every hour lost. Similarly, many studies show that active social engagement with the subject leads to meaningful and lasting learning.? Take good class notes, preferably handwritten. Indicate areas of difficulty to look for after class. Structure your notes as lists, outlines, concept maps, or in another way that works for you. This initial processing of information begins the process of making it your own, also known as learning.? Minimize distractions. Text messages, social networks, online activity, videos, etc. In the class they also unfairly distract your neighbors.? Make questions; ask for clarification as soon as possible. There are no stupid questions!? Contribute to the group. If you help each other, everyone will do better.? Review concepts as soon as possible after class, using the book and other resources. For more lasting learning, try to find the answers to your questions yourself or through active participation in a study group.? Take advantage of the tutoring hours with any questions that you are still not sure of.? Read all emails and course announcements on the Virtual Campus. You are responsible for all information in them, as well as any announcements or postings in the class.? It is highly recommended to pass this subject to be able to take any of the subjects that continue the syllabus in the following courses of the Degree (Systematic Botany: Cryptogamy, Systematic Botany: Phanerogamy and Geobotany).