



COURSE DATA

Data Subject

Code	33103
Name	Introduction to environmental sciences studies
Cycle	Grade
ECTS Credits	6.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
1104 - Degree in Environmental Sciences	Faculty of Biological Sciences	1	First term

Subject-matter

Degree	Subject-matter	Character
1104 - Degree in Environmental Sciences	165 - Incorporation to studies in environmental sciences	Obligatory

Coordination

Name	Department
NUÑEZ DE MURGA, JAVIER	23 - Functional Biology and Physical Anthropology

SUMMARY

The subject "Incorporation to Environmental Science studies" is a compulsory first degree course in Environmental Science which has a total of 6 ECTS taught in the first semester of the first course. It is a part of the subject "Transverse Techniques and Knowledge" out of a total of 16.5 credits and character of basic training (Module VIII of the degree).

First of all, the subject is intended to facilitate the adaptation of students to academic, administrative, social and cultural development of the University of Valencia, given its impact on academic performance. It is also its aim to provide students with knowledge about professional competences and, Environmental Sciences as a profession. It also gives the student information and a critical attitude towards scientific knowledge in its relationship with society and culture.

Secondly, it helps to initiate the development of certain generic skills such as management of information and communication technologies (ICTs), and preparation, publication and presentation of scientific documents. Parallel to the development of these skills, Scientific English will be used, as fundamental language in science. Finally, this basic training will be completed with notions about safety and behaviour in laboratory and field.



PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

1104 - Degree in Environmental Sciences

- Conocimiento detallado del plan de estudios, su justificación, sus diferentes opciones, y la relación entre la formación que se va a recibir y las necesidades y exigencias del mercado laboral.
- Capacidad de diseñar el propio currículum formativo con vistas a la inserción profesional.
- Habilidad para identificar y localizar los distintos servicios y recursos humanos, administrativos e informáticos de la UVEG y utilizarlos en beneficio del rendimiento personal.
- Conocimiento de las normas básicas de seguridad en los laboratorios y en el campo.
- Capacidad de organizar y planificar el trabajo individual, grupal y el estudio.
- Capacidad de manejar el inglés para la lectura de documentos y elaboración de informes.
- Capacidad de comunicación oral en las exposiciones públicas y de argumentación de opiniones personales.
- Capacidad de manejo de las fuentes expertas en contenidos científicos.
- Capacidad de análisis crítico y síntesis.
- Compromiso ético en el manejo de animales para experimentación.
- Compromiso ético en el ejercicio de la profesión de ambientólogo.

- Prepare synopsis and reviews from reading and comprehension of scientific texts.
- Being able of speaking before a public audience, such as the class itself, through exposure or intervention in a debate on a controversial topic or issue.
- Knowledge of basic methodology and apparatus in order to make and record diverse environmental parameters.
- Knowledge of basic methodology and apparatus in order to make and preserve biotic and abiotic samples.
- Ability to interact smoothly with the various services and human UVEG resources and using them for individual performance.



- Ability to obtain scientific information in the field of environmental science and have criteria to assess their validity.
- Develop the capacity for critical thinking, encouraging communication and discussion of contents in order to stimulate individual creativity.
- Ability to work in groups when confronted to problematic situations collectively.
- Ability to argue from rational criteria, distinguishing clearly what is a mere opinion, from real facts or accepted scientific evidence.

DESCRIPTION OF CONTENTS

1. STUDY AND WORK IN ENVIRONMENTAL SCIENCE

1. Structure of the University of Valencia (Universitat faculty, departments, ADR and student representation).
2. Resources and services of the University (DISE, CADE, SFP, CAL, Library, Sports, Medical Service, Web Universitat).
3. Structure of the degree. Postgraduate studies.
4. The profession of environmentalist.

2. 2.1.- SOURCES OF BIBLIOGRAPHIC INFORMATION (theory in the classroom)

Documentation and scientific information.
Information and communication in science.
Historical development.
The process of information transfer.
Bibliographic Information
Primary documents.
Secondary documents.
Bibliography.
Quality and reliability of the bibliographic sources.
Storage and retrieval of bibliographic information
Storage of information
Library and information centres.
Information Retrieval. Search strategies.

3. 2.2.- PUBLICATION SCIENTIFIC RESULTS (theory class)

Items in scientific communication
Authorship
The art of the holder.
Structure of the work: index.
Quotations and bibliographical notes.



How to make tables and graphs.

Publications

The magazine article.

Panels

Written and oral elaboration and presentation seminars.

Reports and projects in biology

4. 2.3 .- PRACTICAL SESSIONS IN COMPUTER ROOM

Session 01 .- Search strategies. Database basic search .- MEDLINE and Science Citation Index.

Session 02 .- Bibliographic databases in the Net. Introduction to RefWorks utilization.

Session 03 .- Creation and use of bibliographic styles through RefWorks.

5. 2.4.- WORKOUT CLASSROOM

01 .- Reading, viewing, discussion and summary of spreading works.

02 .- Oral presentation from spreading works.

03 .- Practical exercises about scientific publications

6. 3.1.- BEHAVIOR AND SAFETY IN THE LABORATORY AND FIELD

Unit 1 .- Security in the laboratory. Good practice in the laboratory. Personal and work habits. Use of equipment and materials. Personal Protective Equipment. Handling of chemicals. Transfer. Labelling. Safety Data Sheets. Symbols of danger. Biological agents. Radiation. Waste minimization program. What to do in case of emergency (1 hour).

Unit 2 .- Handling of laboratory animals. Basic notions about the handling of animals: the need for animal experimentation. Types of laboratory animals. Species used. General biology. Pain and stress. Analgesia, anesthesia and euthanasia. European Union legislation on animal protection. Current regulations in the Spanish State. Alternative methods to animal experimentation (3 hours).

Unit 3. Behavior and safety in the field. The "field" :special area of study and work objectives. Laws and regulations. Security staff in the field. Behaviour. Basic equipment. (1 hour).

Unit 4. Use of cartography, maps and geography position systems (GPS). Types of maps. Scales. Basic instrumentation. Orientation. Positioning. Determination of points of interest. (2 hours).

Unit 5. Recording and storage of data and samples. Work before leaving for the field. The field notebook. Basic concepts about data recording. Registration of physico-chemical and biological parameters. Labeling and storage of biological samples. (2 hours).

7. 3.2 .- FIELD RESEARCH IN BIOLOGY (DATA COLLECTION AND ANALYSIS).

* DATA COLLECTION:

- Field trips:

Basic material of orientation and registration of environmental data. Realization and preservation of samples.

The field trip will be made to an area with terrestrial and aquatic environments, preferably an area or environment with unique species of special interest.



*** DATA ANALYSIS:**

. Laboratory Practice

Associated with the trip to the field, two laboratory practices with the following objectives will be carried out:

Knowledge and use of the basic and working material in the laboratory.

Processing of biological samples.

- Practice in Computer Room.

Design of data collection. Knowledge and use of various computer applications in order to organize data in the field.

8. INTERDISCIPLINARY SEMINARS

"Interdisciplinary Seminars" will be realized in groups (3 / 4 students), with the subject Biology. Teachers of the Biology Subject will tutor and evaluate the contents, while teachers of the "incorporacion" subject will handle the format of the presentations. Each student will elaborate and present a single work for both subjects and the obtained mark will be considered in the two subjects. The instructions for this activity and the delivery of documents by students will be made through Aula Virtual.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Computer classroom practice	12,00	100
Laboratory practices	10,00	100
Classroom practices	6,00	100
Tutorials	2,00	100
Attendance at events and external activities	3,00	0
Development of group work	22,00	0
Preparation of evaluation activities	21,00	0
Preparing lectures	26,00	0
Preparation of practical classes and problem	18,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

PART 1 .- STUDY AND WORK IN ENVIRONMENTAL SCIENCE

Item 1. Structure of the University of Valencia

From the website of the university, faculty and departments planteran exercises that, as a result, allow the student to have an organizational structure of the university, the location of centers and services, departments, etc ... (1 hour)

**Item 2. Resources and services of the University**

In a classroom session will provide a brief description of the different services of the University (DISE, CADE, SFP ...), making emphasis on the services of the Library (1 hour).

In a computer lab session will show through practical exercises virtual classroom performance. Modules will be highlighted especially those related to student-teacher communication (mail, news, tasks, resources, ...). (2 hours)

Item 3. Structure of the degree of Environmental Sciences

In a computer lab session will propose the development of a virtual poster (in groups) to try to answer a key question Why study environmental science?. Through internet you compare our curriculum with other (in Spain and in the European Community), looking for strengths and weaknesses. (2 hours)

In a classroom session will proceed to the presentation of the various poster and discussion of the findings will be reflected in the final document (3 hours)

Item 4. The profession of environmentalist

In a classroom session will present the environmentalist profession, with special reference to professional skills (1 hour)

To work this section will be offered to students searching for jobs (print, internet, job search companies ...) at the level of the European community, related to the environmental sciences. In a classroom session two hours to be classified (as a group) such offers shall be pooled and develop a list of real deals in the labor market.

2.- INFORMATION AND COMMUNICATION TECHNOLOGY (TICs)

This part is structured in classroom activities (classroom theory sessions, practical sessions and computer lab problems) and non-monitored activities of independent work by students.

- *Theoretical sessions in the classroom.* They will be developed in 4 sessions of 1 hour.
- *Practice sessions in computer lab* will be held 3 sessions of 2 hours in computer lab.
- * Practice 1 .- Introduction of basic concepts necessary to develop search strategies. It will train students in the basic operation of databases: MEDLINE and Science Citation Index. As a result of the practice, student search will be kept for further treatment.
- * Practice 2 .- Introduction to Refworks. This software allows the storage of references "on line" and further processing for use in publications.
- * Practice 3 .- Tools available in REFWORKS related to the creation and use of bibliographic styles will be at disposal.

As a result of these practices and proposed a topic students will conduct a literature search in different databases and stored in RefWorks. Once reviewed and removed irrelevant information, students will create a document based on the proposed bibliographic style and practices rise to Aula Virtual for evaluation. This document shall include at least 25 references directly related to the theme.



- *Exercises in classroom sessions.* They will be conducted in classroom sessions of 1 hour. The aim of these sessions is the approach of various activities, working on different aspects needed to present scientific results in various formats.

* Session 1 and 2 .- Reading, viewing, discussion and summary of disclosure documents. In this activity groups will be made and they will be provided with specific documentation on a topic. Students must read, understand and interpret these records and use teamwork in order to get to a script or outline of what was read. Then each student individually will prepare with their own words an abstract (maximum one page).

* Session 3 and 4 .- Discussion and oral presentation. Documentation of the first 2 sessions will be used, obtained from sources of varying quality and reliability, to prepare an oral group of presentation. A representative of each group will hold a presentation for about 10 minutes, defending their points of view. This activity will be used to show in practice the different aspects that may influence the effectiveness of an oral presentation.

* Session 5 and 6 .- Practical exercises publications. Exercises will arise in which, from a document and / or experimental data, students will elaborate different parts of a job. These exercises can also be used for students to deepen their knowledge of English.

PART 3 .- BEHAVIOR AND SAFETY IN THE LABORATORY AND FIELD.

- Theoretical sessions in the classroom. They will be conducted in 9 sessions of 1 hour.

- Sessions of data collection and analysis.

DATA COLLECTION:

* Field trips (6 hours):

Basic material of orientation and registration of environmental data. Taking and preservation of samples.

The field trip will be made to an area with terrestrial and aquatic environments, preferably an area or environment with unique species of special interest.

DATA ANALYSIS:

* Laboratory practice (4 hours)

Associated with the field trip, two lab practices will be carried out with the following objectives:

Knowledge and use of the basic work material in the laboratory.

Processing of biological samples.

* Practice in Computer Room (2 hours).

Design of data collection. Knowledge and use of various computer applications to organize data obtained in the field.



EVALUATION

We propose the following distribution of a maximum of 100 points (50 POINTS WILL HAVE TO BE REACHED TO PASS THE COURSE):

- **ASSESSMENT QUESTIONNAIRES IN VIRTUAL CLASSROOM (50 points)**

Questionnaires will be carried out in the computer room through the Virtual Classroom where test questions will be collected from all parts of the course. It is a necessary condition to make the test properly in order to pass the subject. It will be possible to compensate the marks obtained in the activities if from 20 points. The score in this block will be kept for a full academic year.

- **EVALUATION OF THE ACTIVITIES (up to 50 points)**

This section will assess the activities undertaken by students either in attendance or no attendance. In case of failing the subject in the first round, the activities of this section (as a whole, not separately) will be maintained for a full academic year.

All these activities should be realized during the academic year, between September and May/June. If they are not done in this period it will not be possible to pass the course.

* Development work	15 points
* Literature search	5 points
* Interdisciplinary Seminars	10 points
* Attendance and use the data collection and analysis	10 points
* Attendance and activities, papers, presentations...	10 points
TOTAL	50 points

The evaluation of the field and laboratory practices will be carried out through the field notebook that must be done personally by the student, then scanned and delivered in PDF format through the virtual classroom in a task to reduce as much as possible the risks inherent in paper handling.

To apply for the advancement of the exam of this subject, students should be aware that the mandatory activities outlined in this guide have to be accomplished.

REFERENCES

Basic

- Publicaciones del Servei de Seguretat, Salut i Qualitat Ambiental:
<http://www.uv.es/DSSQA/general/documentacio.htm>



- Bennett, D. P. y Humphries, D. A. 1985. *Ecología de campo*. Blume, Madrid.
- Bookhout, T. A. (ed.) 1996. *Research and management techniques for wildlife and habitats* 5ª ed. Wildlife Society, Bethesda
- Brewer, R. y McCann, M. T. *Laboratory and field manual of ecology*. Saunders College, Philadelphia.
- Brower, J. E., Zar, J. H. y von Ende, C. N. 1997. *Field and laboratory methods for general ecology*. 4ª ed. McGraw-Hill, Boston
- Brown, L. y Downhower, J. F. 1988. *Analyses in behavioral ecology. A manual for lab and field*. Sinauer, Sunderland.
- Calvo, J. F., Ródenas, M., Palazón, J. A. y Ramírez, L. 1994. *Ecología general. Prácticas y experiencias. I*. Universidad de Murcia, Murcia.
- Elzinga, C. L., Salzer, D. W., Willoughby, J. W. Y Gibbs, J. P. 2001. *Monitoring plant and animal populations*. Blackwell, Malden, MA.
- Fowler, J. y Cohen, L. 1999. *Estadística básica en ornitología*. SEO/BirdLife, Madrid.
- Hairston Sr., N. G. 1992. *Ecological experiments. Purpose, design and execution*. Cambridge Univ. Press, Cambridge.
- Heyer, W. R., Donnelly, M. A., McDiarmid, R. W., Hayek, L.-A. C. y Foster, M. S. (eds.) 1994. *Measuring and monitoring biological diversity. Standard*
<http://www.aneca.es/media/15>
<http://www.coambcv.com/nueva/>
- http://www.ceccaa.com/15/index.php?option=com_content&view=frontpage&Itemid=68 (Página de la Coordinadora Estatal de Ciencias Ambientales (CECCAA))
- Krebs, C. J. 1999. *Ecological methodology*, 2nd ed. Benjamin Cummings, Menlo Park, CA.
Libro blanco de Ciencias Ambientales.
- Southwood, T. R. E. y Henderson, P. A. 2000. *Ecological methods*, 3ª ed.
- Sutherland, W. J. (ed.) 1996. *Ecological census techniques: A handbook*. Cambridge Univ. Press, Cambridge.
- Tellería, J. L. *Manual para el censo de los vertebrados terrestres*. Raíces, Madrid
- Williams, G. 1991. *Techniques and fieldwork in ecology*. Collins, London.
- Wilson, D. E., Cole, F. R., Nicholds, J. D., Rudran, R. y Foster, M. S. (eds.) 1996. *Measuring and monitoring biological diversity. Standard methods for mammals*. Smithsonian Institution Press, Washington.
- Wraten, S. D. y Fry, G. L. A. 1982. *Prácticas de campo y laboratorio en ecología*. Academia, León.

**ADDENDUM COVID-19**

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

Contents

The contents initially programmed in the teaching guide are maintained.

If there is a disappearance of face-to-face teaching, the contents are prioritized at the telematic level for theory and problems. Practices cannot be passed at this level and must be in-person. It is not contemplated that contents were lost in a non-classroom situation, except for practices.

Workload and temporary teaching planning

Workload is maintained for the student who marks the number of credits is distributed among different activities in a different way from what the teaching guide initially marked

Maintaining the weight of the different activities that add the hours of dedication marked in the teaching guide, this does not change, since activities that were not in the original teaching guide are not added. There could be some change in the problem and computing schedules.

The preparation of online theory classes by the students requires a greater dedication on the part of the students, which will be considered for a fairer readjustment of the workload.

Teaching methodology

In-person classes may be substituted for materials in the Virtual Classroom. Some of these materials are already available to students and are present in the teaching guide

One could substitute the face-to-face teaching by PowerPoint spoken by the teacher for topics of theory, and Computer if necessary, with uploading of material to the virtual classroom, (There is already much material of this type), recorded videos.

Readings published in scientific journals will be provided, with information from the sources.

The tutorials may be individual or group, better the latter, to resolve doubts or questions. Email will be very important as a fundamental tool.

In the problems, exercises will be put in, which are already done in person, they can be done online.

Laboratory practices: 100% attendance will be maintained in laboratory practices taking the necessary sanitary and social distancing measures. In the case of transition to non-classroom teaching due to the worsening of the pandemic, the content will be adapted to be carried out on-line.

Evaluation

The weighting of continuous evaluation is maintained, this was already foreseen before the pandemic.



The online assessment tests do not change and will be carried out through tools, called questionnaires, available through the virtual classroom. It will not be different from the questionnaires that are currently applied with test questions.

The evaluation of the practices can include exercises, problems, and test questions.

The other 50 points outside the tests, will be carried out just as the classroom teaching guide sets, in each of its sections.

The evaluation of the laboratory practices of ecology will be replaced by a personal work of the student based on the same concepts and methods that had been developed in the course of the practice in a situation of new normality and must be delivered in pdf format through of the virtual classroom.

Bibliography

There are no changes in the recommended bibliography.