COURSE DATA

Data Subject	
Code	33041
Name	Biology
Cycle	Grade
ECTS Credits	6.0
Academic year	2019 - 2020

Study (s)

Degree	Center	Acad. year	Period
1100 - Degree in Biology	Faculty of Biological Sciences	1	First term

Subject-matter

Degree	Subject-matter	Character
1100 - Degree in Biology	5 - Biology	Basic Training

Coordination

Name	Department
BAIXERAS ALMELA, JOAQUIN	355 - Zoology
MATALLANA REDONDO, EMILIA	30 - Biochemistry and Molecular Biology
PUCHE PINAZO, M FELISA	32 - Botany

SUMMARY

Biology is a theme in the first term of the Biology Degree. It offers an overview through subjects of special interest in the context of science and society, including Evolution, Ecology and sustainability, Biodiversity crisis, Human diversity, and Biology and gender. It covers the essentials of a course of General Biology at university level addressing them with regards to fields of the biological knowledge of high scientific and social present times.

The general aim of this course is providing the first year Degree students of a global vision of the impact of Biology in science and society. This general aim is based on the knowledge of different levels of complexity of the biological organisation, presented and explained in correlation with the social impact of some of the big challenges of the contemporary biological research. Essential parts of this general aim are, as in the rest of courses of Biology, to promote in the students a critical and scientific attitude, develop a precise and rigorous biological language, and establish a solid base on which build the complete formation as biologists.

The contents of the Biology course have been designed considering its teaching context in a wider matter of 30 ECTS, including other deeper aspects. Therefore, Biology bases on the contents included in any modern textbook of biology as the fundamental knowledge of this science, the structure of study and specialities, although some of them are briefly attended since they are addressed in greater depth in other courses of the same academic year, with which there is a coordination of contents, as well as of complementary formative activities. In concrete, the structure of the cell and the cellular cycle is addressed in 'Structure of the cell' and the biological evolution is object of 'The tree of the life'. Although the references to these two 'thematic areas' will be constant, the program of Biology will develop specifically no concept in association.

The program has to be also sensitive to the emphasis with which biochemistry and molecular biology are treated during the last course of high school. This part of biology has been removed from the lecture sessions and collected in a thematic block 1, assisted by means of tutorials. Our students intensively review these topics on the base of problems and classical experiments, and they will have also self-study materials.

The thematic blocks 2, 3 and 4 are presented along 22 classroom sessions, condensing the maximum of attendance of the student. Students will receive orientation to the study of the biology concentrated in key aspects. These contents consider the background that the student brings from the high school and that afterwards will be refined along the Degree.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

No requirements or previosus recommendations

OUTCOMES

1100 - Degree in Biology

- Situar la Biología en el contexto de la ciencia a través del conocimiento de algunos de sus grandes temas y problemáticas en el mundo actual.
- Capacidad de análisis, síntesis, trabajo metódico y riguroso.
- Capacidad de análisis crítico de textos científicos.
- Manejo del inglés científico.
- Develop the capacity for organisation and planning.
- Capacidad de presentación escrita y oral de datos científicos.

- Capacidad de divulgación del conocimiento científico.
- Habilidad para el trabajo en equipo.
- Conocimiento y respeto de la diversidad cultural humana.
- Capacidad de valoración de los riesgos medioambientales y de las crisis de biodiversidad.
- Compromiso con la conservación y con el desarrollo sostenible.
- Compromiso con la defensa y práctica de las políticas de igualdad.
- Identificar relaciones entre la ciencia y la sociedad.
- Analizar los valores culturales implícitos en los saberes y prácticas de la ciencia.
- Analizar dilemas éticos derivados de la aplicación de la tecnología y de su uso social.
- Capacidad para divulgar la ciencia.

LEARNING OUTCOMES

Skills
To locate Biology in the context of science through the knowledge of some of the major and subjects, problematic in the current world.
Capacity of analysis, synthesis, methodical and rigorous work.
To prepare and present seminars.
To elaborate synopsis and critical book reviews.
To elaborate synopsis and essays on texts of biological and scientific content.
To obtain scientific information and have criterion to evaluate the validity.
Capacity of disseminating the scientific knowledge.

Social abilities
Skill for the work in team.
Knowledge and concerning on the human cultural diversity.
Capacity of estimation of environmental risks and the biodiversity crisis.
Commitment with the conservation and with the sustainable development.
Commitment with the defence and practical of the equality policy.

DESCRIPTION OF CONTENTS

1. Biomolecules

1.1. The chemical components of the cell. Water. Carbon chemistry. Kinds of biomolecules.
1.2. Proteins: infrastructure and cell working force.
1.3. Nucleic acids: storage and transmission of genetic information.
1.4. Lipids and membranes.
1.5. A tour of the cell: biomolecules in cellular context.

2. Molecular and cellular bases of life

2.1. Levels of organisation in Biology. Two types of cell. Systems Biology and regulation. Diversity. Evolution explains unity and diversity. Research approaches in Biology. Science, technology and society.
2.2. Metabolic and ecological context of biomolecules.
2.3. From gene to protein: gene expression.
2.4. Cell cycle.
2.5. Systems Biology and omic techniques.
2.6. Recombinant DNA technology.

3. Diversity, biological form and function

3.1. Archaea and Bacteria.
3.2. Protists I.
3.3. Protists II.
3.4. Briophites and Pteridophites.
3.5. Seed plants.
3.6. Fungi.
3.7. Animal form and fucntion.
3.8. Animal reproduction and development.
3.9. Animal diversity.
3.10. Animal behaviour.

4. Ecology

4.1. Introduction to Ecology.
4.2. Ecology of populations.
4.3. Ecology of communities.
4.4. Ecology of ecosystems and conservation.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	34,00	100
Tutorials	4,00	100
Development of group work	10,00	0
Development of individual work	17,00	0
Study and independent work	53,00	0
Readings supplementary material	10,00	0
TOTAL	**128,00**	

TEACHING METHODOLOGY

Different learning activities are used along the course. Except activity 4 (Preparation of seminars), where work is developed in groups, all other proposed activities are individual tasks and as such will be evaluated. The proposed activities are the following:

1. Lectures

The teachers will make brief presentations of fundamental concepts of each topic in interactive classes, using appropriate audiovisual resources that will be accessible to students through the university virtual teaching platform, according to established rules. Students will be advised about adequate literature and resources to be used for further study of the concepts that will also be correlated with the topics of the conferences and seminars that are integrated in the course program. Lectures will be aimed to the preparation of students for attending the conferences. Attendance to these classes is required and teachers can establish controls when appropriate.

2. Conferences

Various topical issues in Biology will be addressed through four conferences scheduled to allow students to connect biological learned concepts and to provide them an integrated and scientific view of the individual concepts covered in the lectures. These conferences will be offered as part of permanent cycles in the Faculty of Biological Sciences or other centers of the University of Valencia, or specifically for the subject. Students will draw up a report for each lecture in the format of scientific note. After the first conference a tutorial session will be introduced to discuss the content and style of the notes (see tutorials). Conference attendance is mandatory. The four conferences for the 2019-2020 academic year will focus tentatively on the following topics:

- Symbiosis and horizontal transfer

- Darwin and the Origin of Species

- Immunosystem and histocompatibility

- Ecology and Conservation

3. Book reading

Reading of one popular science book in the field of Biology, chosen by students from the list of complementary references included in the references. The students will address a reading note. In addition, a colloquium will be organized in a group tutorial session. The tutoring of each book is organized by a different course teacher, which will act as coordinator of the reading (see also section 5. Group tutorials). Besides this activity, which is mandatory, students can read additional titles included in this section or in a more complete list. Reading of secondary texts can never replace the required text and students should contact the teacher in advance.

4. Preparation of seminars

Seminars of this subject are approached from an interdisciplinary perspective in collaboration to all the other subjects of the course. Students in groups of three will elaborate a poster on a topic proposed by professors at the beginning of the course. To do this, they will have the advice of tutor professors designated for that purpose. A common session to present the posters will be held before the end of the course. In this session, students should explain their work and answer the questions of teachers and other students. All the professors of involved subjects will evaluate the posters jointly. The use of English will be valued. Alternative to this activity other transversal activities endorsed by the CAT may be possible in the framework of some educative innovation project.

5. Group tutorial sessions

Three tutorial sessions in small groups articulated as follows:

- **Tutorial 1 (1,5 hours): Interpretation of problems and experiments**. The student solves a test relative to classic methods and experiments in biology and prepares individually the responses. Then the group discusses with the teacher the responses. In this tutorial, particular importance is given to biochemistry and molecular biology, so students will have previously available presentations and study guides based on the textbook to help preparation of these issues.

- **Tutorial 2 (1 hour): Biodiversity: meaning and limits**. For an hour and with previous training through reading and exercises, students discuss the use and abuse of the concept of biodiversity.

- **Tutorial 3 (2 hours): Reading Workshop**. After reading the popular science book, students participate in a workshop. Students should previously elaborate a reading note and prepare questions and concerns about the reading, which may be answered by other students or by the teacher, if necessary. It is expected that students direct discussion. The discussion should be ordered. Students can provide additional reading or criticism if they find them relevant. As the reading tutorial brings together students from different groups, it is programmed out of the standard schedule and properly announced.

Attendance to all the tutorial sessions is compulsory and full attention is expected. Proper participation in these activities is required and will be assessed at the discretion of professors and in those sections that may be related to the specific contents of each tutorial.

6. Electronic tutorials.

Students and teachers will be in contact by means of electronic media. Students can direct specific queries to teachers at any time through the university virtual platform and teachers will use the platform to communicate any schedule change or unexpected events.

7. Student autonomous work

All the work the student spends in subject preparation, apart from attendance to lectures, seminars, tutorials and exams. It may include exercises through Aula Virtual. It includes various activities: the hours of study to be spent each week to expand and consolidate the knowledge acquired in the classroom, additional work that the teacher can plan throughout the semester to complement the lectures, as the reading of popular science books and the preparation of conference reports mentioned above. Given the variety of such activities, their interaction with the course subject and the importance for evaluation, this course gives special prominence to student's autonomous work.

Note on language use: Although a basic linguistic profile (Spanish, Valencian) is assigned to each group, activities organized in common for all groups (attending conferences, reading worshop, etc.) and occasional activities by invited teachers may have different linguistic profile. Therefore students, regardless of the profile of their choice, should be prepared to attend activities in Valencian, Spanish and English.

Note on crediting: Because of the teaching/learning methodology used, this course is designed with a proportion of dedication to autonomous work higher than the average, 75% as it was specified in the Verifica document of the degree in Biology. Therefore the actual hours of autonomous work are 112, rather than 90 as listed in paragraph 7 of this guide, maximum non-contact hours allowed by the application.

EVALUATION

Based on the different activities described in the methodology section, continuous evaluation of students will be developed, assessing attendance to all classroom activities, including examinations, the preparation and presentation of all tasks and complementary activities, participation and the degree of involvement in the teaching-learning process. In general, attendance to group tutorial sessions and conferences is absolutely mandatory. The unexcused absence or inappropriate behavior may result in a penalty in the overall rating of the course at the discretion of the tutors. **The final mark to pass this subject has to be equal to or greater than 5 point on a 10 points scale.**

Specific aspects to assess are:

1. Objective test on the basic contents of the course including theoretical and practical issues. The qualification of this test will represent 40% of the final grade. Special emphasis will be given to the understanding of basic concepts for the development of their biological training and for the achievement of overall objectives of the course. The test will be common to all students of the subject independently of the group to which they belong. The test must be overcome with 5 out of 10 points.

2. Readings and lectures (50% of the final grade):

a. **Evaluation of the reading report** will represent **15% of the final grade.** Elaboration of one book reading report is required but presentation of additional reading reports will also be evaluated. The evaluation of this activity will assess the capacity of analysis, criticism and synthesis of scientific texts. It will be required the participation in the colloquium group tutorial session in order to assess active participation.

b. Evaluation of conference reports will represent **20 % of the final grade**. The evaluation of this activity will assess the ability to correlate biological knowledge in the context of present science and the capacity to transmit scientific information. Attendance to conferences will be absolutely mandatory. Students cannot present conference reports if they did not attend the conference. The first conference work will be supplemented by a group tutorial session in which students will discuss with professors the content of the conference reports, how to deal with this type of activity and its assessment.

c. Other exercises. Representing 20% of the final grade. Tutorials 1 and 2 and its complementary readings as well as tutorial 1 allow questionaires amb training information**.**

3. Evaluation of interdisciplinary seminar on a poster format that will represent **10% of the final grade**. The evaluation of this activity will check the ability to obtain scientific information and to establish criteria to assess its validity, the ability of dissemination of scientific knowledge, the ability to teamwork and the ability for oral and public presentation. **Presentation of the poster in English will be highly valued and may involve an extra credit of up to 10%.** The evaluation of this activity will be coordinated and unique for the entire course.

NOTE 1: It is important to note that although students attend the same group for most of their activities and are primarily tutored by teachers from this group, teachers of this subject act in a coordinated manner and some activities can be organized and evaluated by teachers outside the assigned group. In this sense, see also the 'Note on linguistic profile" in the Methodology section.

NOTE 2: Students have two calls each course in which to qualify for paragraph 1 (objective test). However, other activities can only be qualified during the course itself and are not susceptible of a second call (see also Note 5). The teaching team will give all facilities to students that, due to work or illness reasons, properly justified, cannot attend a mandatory classroom activity. However such measures should be considered exceptional. It is the student's responsibility to notify to their teachers these special situations adequately and, if possible, in advance, and they will be assessed in committee, on an individual basis and in a non-binding way. However, neglecting attendance at tutorials, conferences or exams, delivery of work, monitoring of grades and in general any commitment that marks the calendar of the subject will be interpreted as lack of interest on the part of the student and will generate penalty on the final grade , being able to contribute to a bad evaluation, even to the suspense.

For these activities, assistance excuses will be accepted solely for the following reasons:

(a) illness of the student or serious illness of a member of the student's family. Supporting medical note required.

(b) Death of a member of the student's family. Explanatory documentation required.

(c) travels organized by subjects of the school itself and upon notification by the corresponding subject degree and when this activity corresponds to subjects programmed into the curriculum required of the student.

(d) assistance to sports on students subject to high performance sports programs or tests belonging to the University team. Explanatory documentation required.

(e) legal or judicial subpoena. Explanatory documentation required.

(f) time incompatibilities arising due to work compatibility. Explanatory documentation required.

(g) in the case of conferences, it will be considered the extreme difficulty in understanding Valencian language as a cause of exemption from the corresponding work. Applicable only to students who have received pre-university training out of Valencia, and then cannot follow any conference in that language. They have the obligation to attend the Conference. Then they will be assigned an alternative Conference which prepared the work and this will be evaluated.

(h) any other reason deemed acceptable by the teachers may be subject to evaluation in this section.

In any case a justified excuse does not relieve the student of their obligation to comply with the activity, but prevents the consideration of lack of participation. Any management concerning the replacement for alternative activities or recovery of commitments shunned by students must be initiated by the student concerned and should not expect that the teacher cares for each case individually. The lack of response by the teaching staff should not be understood as acceptance. You will be positively valued any action to resolve the case before failure occurs.

NOTE 3: The qualification of “not evaluated” will be considered only when the student has participated in none of the activities of the subject. Therefore, this qualification will not be applied to students who do not attend the objective test if they have presented other works.

NOTE 4: Maximum honesty is expected from students of this University in the works they have to prepare, which are always considered original. Special mention should be given to the copying or reproduction of foreign text in the work carried out by the students. Ease of access to materials and information on the internet is a great advantage but at the same time represent a problem if these materials are reproduced verbatim ("copy/paste"). The teaching staff of the UVEG has electronic tools to track this kind of behavior. Since these activities not only affect the repute of the student, but are illegal and affect the whole of the University, and they may even be subject to harsh sanctions that go beyond the framework of the evaluation of the subject.

NOTE 5: According to the rules of the university to apply for advance notice of a subject they should have performed the mandatory activities that are specified in the teaching guide of the subject. Students wishing to benefit from the rules in advance of call that for the purposes of this course reading activities, conferences and interdisciplinary work are considered "mandatory" Be warned.

NOTE 6: The exercises and other materials such as chips readings and lectures will be delivered by electronic tasks through Virtual Classroom. Please maximum attention to the instructions and warnings issued through this platform. Late deliveries will not be accepted.

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ADDENDUM COVID-19

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

English version is not available