Course guide
390101 - BG - General Biology

Unit in charge: Barcelona School of Agri-Food and Biosystems Engineering
Teaching unit: 745 - DEAB - Department of Agri-Food Engineering and Biotechnology.

Degree: BACHELOR'S DEGREE IN BIOSYSTEMS ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN AGRONOMIC SCIENCE ENGINEERING (Syllabus 2018). (Compulsory subject).

Academic year: 2022 ECTS Credits: 6.0 Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: Sorribas Royo, Francisco Javier

Others: Sorribas Olivera, Marcel
Verdu Gonzalez, Antonio Maria
Mas Serra, Maria Teresa
Sorribas Royo, Francisco Javier
Gualda Manzano, Emilio Jose

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
2. Knowledge of the fundamental concepts of animal and vegetal biology related to engineering.

Transversal:
1. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

TEACHING METHODOLOGY

The hours of directed learning consist of:
- Theoretical classes (large group), the teacher makes an exhibition of three parts: (1) introduction of the learning objectives, (2) presentation of the basic concepts (3) seek students involvement through questions, in order to relate these concepts.
- Practical classes (small group) to encourage students to carry out activities that are proposed and described in the laboratory guidelines, in order to learn various methodologies involved in Plant Biology.

The student has support material (such as diagrams and photographs to support the theoretical classes, research papers, the laboratory guidelines and references to complementary readings, link to thematic Internet pages, etc.) in ATENEA. It also promotes independent learning, particularly through the interaction that take place in the classroom.

LEARNING OBJECTIVES OF THE SUBJECT

After General Biology subject, the student should be able to:
- Recognize the characteristics of living organisms, their complexity and their interactions with the environment (what are they?, where do they come from?, how do they change?, and why do they change?).
- Understanding the molecular basis of life and the mechanisms that originate the biological diversity.
- Identify the major groups of living organisms
- Acquire knowledge of the characteristics and processes of the main ecosystems and habitats.
- Develop skills in laboratory techniques

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### STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>40.0</td>
<td>26.67</td>
</tr>
<tr>
<td>Hours small group</td>
<td>20.0</td>
<td>13.33</td>
</tr>
<tr>
<td>Self study</td>
<td>90.0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

**Total learning time:** 150 h

### CONTENTS

#### THE CELL

**Description:**
- The evolution framework of Biology
- Cellular organization
- Cellular pathways of energetic metabolism
- The cell cycle
- The DNA and its role in heredity
- The genome of virus, prokaryotes, eukaryotes and its expression

**Related activities:**
Activity 1: Theory lessons
Activity 2: Tests
Activity 3: Biology laboratory practices

**Full-or-part-time:** 52h 30m
- Theory classes: 15h
- Laboratory classes: 6h
- Self study: 31h 30m

#### EVOLUTION OF DIVERSITY

**Description:**
- Evolutionary processes, speciation, phylogeny, taxonomy
- Prokaryota domains: Bacteria and Arcaea
- The protists and the emergence of Eukarya
- The biology and diversity of fungi
- Plants: from the sea to land
- The form of animal life: boggy plans and diversity
- Composition and structure of the biocenosis

**Related activities:**
Activity 1: Theoretical lessons
Activity 2: Field assessment tests
Activity 3: Practices of biology laboratory

**Full-or-part-time:** 98h
- Theory classes: 25h
- Laboratory classes: 14h
- Self study: 59h
# ACTIVITIES

## ACTIVITY 1. THEORY LESSONS

**Description:**
The content of the subject is organized in 2 thematic blocks, with multimedia support and facilitating the participation of students during the duration of the sessions (1 or 2 hours)

**Full-or-part-time:** 100h  
Theory classes: 40h  
Self study: 60h

## ACTIVITY 2. INDIVIDUAL TESTS

**Description:**
There will be two exams, on the dates assigned to the course calendar, which will include theoretical (T1 and T2) and practical (P1 and P2). The exams will be multiple-choice tests with some short-answer questions

**Full-or-part-time:** 4h  
Theory classes: 2h  
Laboratory classes: 2h

## ACTIVITY 3: BIOLOGY LABORATORY PRACTICES

**Description:**
At the Atenea intranet (Moodle), the practical guideline for the contents of the 9 laboratory practices sessions of 2 hours duration is available. The student must read the script before. At the beginning of each session the basic rules for the correct development of the practices are reviewed and the most important aspects of the experimental work are discussed. At the end of each session, a report of the activity about the activity carried out will be handed. The thematic of the practices is related and synchronized to thematic blocks of theory (activity 1)

**Full-or-part-time:** 45h  
Laboratory classes: 18h  
Self study: 27h

## ACTIVITY 4. LIBRARY ACTIVITY

**Description:**
- Session to learn about the campus library services  
- Search of bibliographic material related to the subject

**Related competencies:**
06 URI N1. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

**Full-or-part-time:** 3h  
Laboratory classes: 2h  
Self study: 1h
ACTIVITY 5. SUBJECT TOPICS ON VIRTUAL CLASSROOM

Description:
In the virtual classroom there is material available for monitoring the activities of the subject:
- presentations of the theory sessions (activity 1)
- practice guidelines (activities 4 and 5)
- documents updated, or links to the internet, about the contents of the subject, which are part of the assessment material.

Full-or-part-time: 30h
Self study: 30h

GRADING SYSTEM

There will be two exams, on the dates assigned to the course calendar, which will include theoretical (T1 and T2) and practical (P1 and P2). The exams will be multiple-choice tests with some short-answer questions. In addition, each practice group will present the report of a practice at the end of the session (IP).

The final mark for the course will be calculated according to the following expression:
Final course mark = 0.3 T1 + 0.1P1 + 0.3T2 + 0.1P2 + 0.2IP
Those who do not pass the course (minimum final mark = 5.0) may sit the re-evaluation test for the whole course.
The final mark of the re-evaluation will be the result of the test.
Students who have already passed the subject and those who have been marked as not presented may not take part in the re-evaluation of a subject.

EXAMINATION RULES.

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BIBLIOGRAPHY

Basic:

Complementary: