Course Unit	General Biology			Field of study	Natural Sciences								
Bachelor in	Environmental Education			School	School of Education								
Academic Year	2021/2022	Year of study	1	Level	1-1	ECTS credits	10.0						
Type	Annual	Semester	-	Code	9082-620-1001-00-21								
Workload (hours)	270	Contact hours	T -	TP 63	PL 36	TC -	S -	E -	OT 18	O -			

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): Delmina Maria Pires

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Know some rules, techniques and basics concepts of laboratory work.
2. Identify the chemical constituents of cells and the main nutrientes that are essential to it.
3. Understand how the cell is the unit of functioning of all living organisms.
4. Distinguish Procariotic cells from eukaryotic cells, animal and plant cells and understand the functional implications of these differences.
5. Know the stages of cell multiplication: mitosis and meiosis, its functional implications, and describe the formation of reproductive cells.
6. Identify mutagenic agents and mutations (gene and chromosomal) and morphological and physiological implications.
7. Understand the mechanisms of transmission of genetic information (replication, transcription and translation) and some examples of heredity.
8. Demonstrate ability to interpret/explain current situations in the context of biology and apply basic concepts of physiology and genetic issues related to health and the environment .

Prerequisites

Before the course unit the learner is expected to be able to:
Dose not have.

Course contents

Rules, techniques and basics concepts of laboratory work. General concepts of biology - From cell To the transmission of hereditary characteristics:Biomolecules; Constitution and cellular organization; The cell to the multicellular organism; Transmission of the characteristics from parents to children - Inheritance.

Course contents (extended version)

1. Techniques and basic concepts of the laboratory work: Types preparations, reagents, and dyes.
2. Biomolecules: protides, lipids, carbohydrates and nucleic acids - structure and function.
3. Cells - Constitution and cellular organization:
   - Procaryotic and eukaryotic cells; animal and plant cells - similarities and differences.
   - Major cellular components - Structural and functional features.
   - Single-celled organisms: fungi (yeasts), protozoa and algae, bacteria, and . . . ?
4. The cell to the multicellular organism:
   - Cell multiplication - Mitosis. Cell cycle (Mitosis and Interphase);
   - Transfer mechanisms of genetic information: replication/duplication, transcription and translation;
   - Formation of reproductive cells - Meiosis. Gametogenesis and fertilization;
   - Mutagens and mutations (gene and chromosomal mutations). Some hereditary diseases.
5. Transmission of the characteristics from parents to children - Inheritance.
   - Mechanisms of transmission of the hereditary information;
   - Some cases of heredity.

Recommended reading

1. Amabis, J. , & Martho, G. (2003). Fundamentos da Biologia Moderna. 3. ªEd. S. Paulo: Editora Moderna
2. Amabis, J. , & Martho, G. (2002). Biologia dos Organismos. vol. 2. S. Paulo: Editora Moderna
3. Jones, C. , & Gaudin, A. J. (2000). Introdução À Biologia. 3. ª Ed. Lisboa: Fundação Caloute Gulbenkian
4. Lopes, S. (2010). Bio, volumes: 1, 2 e 3. São Paulo: Editora Saraiva.
5. Paulino, R. (2007). Biologia, volumes: 1, 2 e 3. São Paulo: Editora Ática.

Teaching and learning methods

The course has strong component interactive and practical. Some classes will have a theoretical/illustration character, where the presentation of content is made by the teacher, but there are also theoretical and practical lessons with students' speech, with debates and discussion of the proposed topics. In practice component will be carried out various activities related to the syllabus.

Assessment methods

1. Alternative 1: Continuous Evaluation - (Regular, Student Worker) (Final)
   - Intermediate Written Test - 50% (The classification is obtained by giving equal weight to each of the three partial tests (50%).)
   - Practical Work - 25% (Reports of practical classes (nine) (25%).)
   - Presentations - 25% (Group work (25%).)
2. Alternative 2: Evaluation by Exam - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 50% (Concerns only of the three partial tests and will be accomplished through a written exam (50%).)
   - Practical Work - 25% (Reports of practical classes (continuous evaluation) (25%).)
   - Presentations - 25% (Group work (continuous evaluation) (25%).)

Language of instruction

Portuguese

Electronic validation

Delmina Maria Pires	Delmina Maria Pires	Paulo Miguel Mafra Gonçalves	Carlos Manuel Costa Teixeira
25-10-2021	25-10-2021	29-10-2021	25-11-2021