



COURSE UNIT INFORMATION SHEET (SYLLABUS)

2020/2021

Name Biology and Genetics
Teaching staff Prof. Carlos Fernandes
ECTS 6
Functioning 2 hours of theoretical class and 2 hours of practical class, weekly. Theoretical lectures, with projection of images and videos, in interaction with the students. Practical classes with a short theoretical introduction. Handling and observation of biological materials. Group work for the study and preparation of a scientific article (in the scope of the discipline and the course) for presentation in the practical class, and counted as an element of evaluation. If traditional classes are not possible because of Covid-19, theoretical lectures will consist of online classes using the Zoom tool or of PowerPoint files with narration. Practical classes will consist on the visualization of videos that complement the contents taught in the theoretical classes and in the resolution of exercises. The group work becomes optional.
Learning goals Provide fundamentals of cell biology, heredity, genetics, and physiology. Establish relationships between Biology and Genetics and Psychology. Understand biological and genetic mechanisms responsible for behavior and its pathologies.



Skills to be developed

Learning, development and consolidation of knowledge in Biology and Genetics.

Ability to apply concepts of cell biology, genetics and physiology.

Prerequisites (precedences) *

Not applicable

Contents

Animal cell; cellular components; cell types; cell dynamics; cell division; control of cell activity by the nucleus; mitosis; meiosis; gametogenesis; chromosomes; genotype; genomes; hereditary transmission patterns; genes; genetic code; transcription and translation; Mendelian genetics; molecular markers; Mitochondrial DNA; microsatellites; simple nucleotide polymorphisms; monogenic and polygenic heredity; dominance and recessivity; heritability; genetic diseases; fundamentals of the endocrine and immune systems.

Bibliography

Alberts, B., Johnson, A., Lewis, J., Morgan, D., Raff, M., Roberts, K. & Walter, P. (2015). Molecular Biology of the Cell. Sixth Edition. Garland Science. New York and Abingdon, UK.

Griffiths, A., Doebley, J., Peichel, C. & Wassarman, D. (2020). Introduction to Genetic Analysis. 12th Edition. Freeman and Company. New York.

Strachan, T. & Read, A. (2019). Human Molecular Genetics. Fifth Edition. Garland Science. New York and Abingdon, UK.

Cooper, G. (2019). The Cell: a Molecular Approach. Eighth Edition. Oxford University Press. New York.

Kalat, J. (2018). Biological Psychology. 13th Edition. Cengage Learning. Boston.

Other specific bibliography will be indicated in the classes.

Teaching methods

Theoretical and practical classes

Evaluation Regimes (General and/or Alternative)



General Evaluation Regime
Evaluation Elements (Dates due, weights, minimum required grades) Final exam on the contents of the theoretical and practical classes, with a maximum score of 16 out of 20 (80%), and work and presentation on a scientific article within the scope of the discipline and the course, with a maximum score of 4 (20%). The final score will be the sum of the partial scores. The approval in the discipline, by obtaining a final score ≥ 9.5 , is conditional on obtaining a ≥ 7.5 score in the final exam and a ≥ 2 score in the work and presentation of the scientific article. If traditional classes are not possible because of Covid-19, the group work becomes optional.
Rules for grade improvement For students approved in this academic year, the same as described in the point above. For students approved in previous years, exam for 20.
Rules for students having previously failed the course unit * Exam for 20.
Requirements on attendance and punctuality In the practical classes, a maximum of 1/3 of absences is allowed. Presences presuppose participation in the entire class. Students must enter the class within 15 minutes after the set time and do not leave the room without a justification given to the teacher.
Rules for special students (workers, elite athletes, student body leaders, military, fathers/mothers, with special needs) * Not applicable
Language of instruction



Portuguese

Disciplinary violations and penalties

According to the Evaluation of Learning Regulation of the Faculty of Psychology of the University of Lisbon, the following behaviors are considered as disciplinary offenses subject to disciplinary action:

- a) To use or attempt to use materials, information, notes, study resources or other objects and equipment not authorized in academic exercises;
- b) To help or try to help a colleague in committing a disciplinary offense;
- c) To submit the same written work for evaluation in different course units without permission from the instructors, even if with minor changes;
- d) To present someone else's work as one's own;
- e) To forge, or change without permission from the author, any information or citation in an academic work;
- f) To interfere, change or attempt to change grades;
- g) To try to prevent or interfere with the proper functioning of classes, research or other academic activities;
- h) To make false accusations regarding instructors, governance bodies, other students or non-teaching staff of the FPUL;
- i) To falsify signatures in attendance sheets, documents relating to evaluation elements or in any official document relating to an academic process or status.

Disciplinary offenses committed in any assessment element can lead to its annulment, and must be reported to the Pedagogical Council or, considering their gravity and repetition, may lead to other penalties, to be determined by the Rector of the University of Lisbon.

* If applicable