# UNIVERSITÀ DEGLI STUDI DI PALERMO

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| **DEPARTMENT** | Scienze Psicologiche, Pedagogiche, dell'Esercizio Fisico e della Formazione |
| **ACADEMIC YEAR** | 2022/2023 |
| **BACHELOR'S DEGREE (BSC)** | PSYCHOLOGICAL SCIENCES AND TECHNIQUES |
| **SUBJECT** | BIOLOGY |
| **TYPE OF EDUCATIONAL ACTIVITY** | D |
| **AMBIT** | 10512-A scelta dello studente |
| **CODE** | 85100 |
| **SCIENTIFIC SECTOR(S)** | BIO/05 |
| **HEAD PROFESSOR(S)** | PARRINELLO DANIELA Professore Associato Univ. di PALERMO |
| **OTHER PROFESSOR(S)** | |
| **CREDITS** | 6 |
| **INDIVIDUAL STUDY (Hrs)** | 110 |
| **COURSE ACTIVITY (Hrs)** | 40 |
| **PROPAEDEUTICAL SUBJECTS** | |
| **MUTUALIZATION** | |
| **YEAR** | 3 |
| **TERM (SEMESTER)** | 1° semester |
| **ATTENDANCE** | Not mandatory |
| **EVALUATION** | Out of 30 |
| **TEACHER OFFICE HOURS** | **PARRINELLO DANIELA**<br>Monday 09:30 11:30 Dipartimento di Scienze della Terra e del Mare (DiSTeM) Ed. 16 Viale delle Scienze piano seminterrato -1.Si prega di prenotarsi al ricevimento tramite mail daniela.parrinello@unipa.it<br>Thursday 09:30 11:30 Dipartimento di Scienze della Terra e del Mare (DiSTeM) Ed. 16 Viale delle Scienze piano seminterrato -1.Si prega di prenotarsi al ricevimento tramite mail daniela.parrinello@unipa.it |

**DOCENTE:** Prof.ssa DANIELA PARRINELLO

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| **PREREQUISITES** | Biology basic knowledge according to the programs of the secondary school |
| **LEARNING OUTCOMES** | Knowledge and understanding Achievement of basic knowledge of biology, through the study of the levels in organism complexity and the main mechanisms of biological systems. Ability to use the specific language and scientific method, and to understand the main applications in biology with reference to behavioral genetics. Applying knowledge and understanding Being able to assess the results of biological studies and their ethical and social implications, with particular reference to the four basic biological themes: cells, genes and their expression, genetic diseases, evolution. From the analysis of these arguments and their mutual connections, the understanding of the basic biological mechanisms will be achieved. Making judgments Being able to evaluate the implications and results of biological studies with analytical skills and synthesis for the formation of critical and ethical thinking, also in relation to interactions with other disciplines. Communication Acquisition of specific technical language and the ability to display and transpose the results of the biological studies, in the professional field. Lifelong learning skills Update capability with the consultation of scientific journals in biological field. Ability to follow, using the knowledge acquired in the course, disciplines, workshops, advanced courses, specialized seminars and biology related disciplines. |
| **ASSESSMENT METHODS** | Written test (multiple choice, true / false). The test tends to verify the skills and knowledge relating to the field specification of the course. It consists of 15 questions, each of which is accompanied by two or more closed answers. In addition, a short justification will valid the chosen answer. The skills and knowledge are estimated through the choice of / the exact answers chosen among those offered to every question. The closure of the response will allow the examiner to determine in advance the score to be assigned to each question depending on the answer: correct, wrong or omitted. Every correct answer is evaluated with a score of 2; that wrong (including the incorrect justification) with the score -0.50; failure to reply with a score of 0. Duration of test: 60 minutes. The candidate may require an interview if he/she has achieved a minimum score of 22/30. The final evaluation will concern: 1) the correctness of the procedure used to resolve the question; 2) the adequacy of the proposed solution in relation to the acquired skills; 3) the use of a proper language. The test will be ecxeeded if requirements 1 and 2 will be met. The interview, may also be requested by the student who has achieved the score of 22/30. In any case, the evaluation of the interview replaces that achieved with the written test. Under conditions of distance Teaching, the examination mode can be supplemented or replaced with an interview<br>EVALUATION CRITERIA<br>assessment: excellent, grade: 30 - 30 cum laude, excellent knowledge of the topics of the course, excellent use of language, excellent analytical capacity, ability to apply knowledge to problem solving; - assessment: very good, grade: 26-29, good knowledge of the topics of the course, correct use of language, good analytical capacity, ability to apply knowledge to problem solving; - assessment: good, grade: 24-25, good knowledge of the main topics of the course, correct use of language, limited ability to autonomously apply knowledge to problem solving; - assessment: satisfactory, grade: 21-23, partial knowledge of the topics of the course, satisfactory use of language, limited ability to autonomously apply knowledge to problem solving; - assessment: sufficient, grade: 18-20, minimal knowledge of the main topics of the course and of technical language, scarce ability or inability to autonomously apply knowledge to problem solving; - assessment: fail, insufficient knowledge of the topics of the course. |
| **EDUCATIONAL OBJECTIVES** | The aim of the course is to provide students with basic knowledge of main cellular and molecular mechanisms that regulate the activities of prokaryotic and eukaryotic cells. It also provides skills for understanding the mechanisms of expression of the genes, the genetic transmission, gametogenesis and of embryo development. At the end of the course the student will demonstrate knowledge on the mechanisms that regulate the main activities and put in evidence the complessity of the biological systems at various levels. |
| **TEACHING METHODS** | Lessons and theoretical exercises to be adapted to the technical needs of distance learning. |
| **SUGGESTED BIBLIOGRAPHY** | Solomon,Berg,Martin –Fondamenti di Biologia – EDISES VII edizione ISBN 9788879599399<br>Testo integrativo: Robert J. et al –Biologia – McGraw-Hill. Vol. 1 CELLULA ISBN 8838660557<br>CD-ROM a cura del docente |

## SYLLABUS

| Hrs | Frontal teaching |
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| 5 | General characteristics of living organisms. Proteins, carbohydrates, lipids, and the structure-function relationship |

# SYLLABUS

| Hrs | Frontal teaching |
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| 5 | The eukaryotic cell. The membrane. Structure and function of cellular organelles. Receptors and cellular communication. |
| 5 | The genetic code and the gene expression: Transcription, Translation |
| 6 | The chromosomes. Mitosis and cell cycle. Karyotype, mutations and genetic diseases. |
| 5 | Reproduction and sexuality. Meiosis and gametogenesis |
| 4 | Heredity: the laws of Mendel, and non-Mendelian heredity |
| 2 | Behavior genetic |
| 4 | Morphogenesis and mechanisms of embryonic development |
| 2 | Evolution |
| 2 | Theoretical exercises |