

**SYLLABUS FOR THE BIOLOGY EXAMINATION  
FOR ACCESS TO AND ENTRY INTO HIGHER EDUCATION FOR OVER 23 YEARS OLD, AT UFP**

**General Objectives:**

- Know, understand and be able to use concepts of Biology to interpret aspects of Diversity in the Biosphere, Energy Production, Distribution of Matter, Use and Distribution of Energy by living beings, Regulation in living beings, aspects of the functioning of the cell, Reproduction in living beings, Mechanisms of Evolution and Classification Systems. - Facilitate the future integration of candidates in a course of higher education. - Fill basic knowledge deficits in the area of Biology.

**Syllabus**

1. Biosphere diversity
  - 1.1. Biosphere
    - 1.1.1. Diversity.
    - 1.1.2. Organization.
    - 1.1.3. Extinction and conservation
  - 1.2. The Cell
    - 1.2.1. Structural and functional unit
    - 1.2.2. Basic constituents
2. Obtaining the matter
  - 2.1. Obtaining matter by heterotrophic beings
    - 2.1.1. Unicellular vs multicellular
    - 2.1.2. Ingestion, digestion and absorption
  - 2.2. Obtaining matter by autotrophic beings
    - 2.2.1. Photosynthesis
    - 2.2.2. Chemosynthesis
3. Distribution of matter
  - 3.1. Transport in the plants
    - 3.1.1. Transport in the xylem
    - 3.1.2. Transport on the phloem
  - 3.2. Transport in animals
    - 3.2.1. Transport systems
    - 3.2.2. Circulating fluids
4. Transformation of matter into energy
  - 4.1. Fermentation
  - 4.2. Aerobic respiration
  - 4.3. Gas exchange in multicellular beings
    - 4.3.1. In plants
    - 4.3.2. In animals



- 5. Regulation of the internal environment
  - 5.1. Nerve and hormonal regulation in animals
    - 5.1.1. Thermoregulation
    - 5.1.2. Osmoregulation
  - 5.2. Plant hormones
- 6. Renovation and growth
  - 6.1. Cell growth and renewal
    - 6.1.1. DNA and protein synthesis
    - 6.1.2. Mitosis
  - 6.2. Tissue growth and regeneration vs cell differentiation
- 7. Reproduction
  - 7.1. Asexual reproduction
    - 7.1.1. Breeding strategies
  - 7.2. Sexual reproduction
    - 7.2.1. Meiosis and fertilization
    - 7.2.2. Sexual reproduction and variability
  - 7.3. Life cycles, unity and diversity
- 8. Evolution
  - 8.1. Unicellularity and multicellularity
  - 8.2. Evolution mechanisms
    - 8.2.1. Evolutionism vs fixism
    - 8.2.2. Natural selection, artificial selection and variability
- 9. Organization and classification
  - 9.1. Classification systems
  - 9.2. Diversity of criteria
  - 9.3. Taxonomy and Nomenclature
  - 9.4. Modified Whittaker classification system

### **Bibliography**

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