



Teachers' guide – summary sheet

Initial Identification details:

Title:	Degree in Biotechnology (Plan 2009)
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Faculty/School:	Bio-Health Sciences
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Course subject:	Cellular Biology
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Type (3):	Obligatory
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Credits ECTS:	6
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Year / Semester (4):	1st Year-1st Semester
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Code (1):	2010
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Subject (2):	Biology
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Module (2):	Fundamental Sciences
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Language (5):	Spanish
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Total number of hours undertaken by pupil (6):	150
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Brief description of the course (7):

The Cell Biology course provides students with basic knowledge of structural and functional properties of cells. In particular it is intended that students know the structure and function of each organelle and compartment of eukaryotic cells and the interactions between them to carry out cellular functions, as well as the capacity of liaison and coordination between cells in multi-cellular organisms.

Prior Knowledge (8):

The student submitting the subject of Cell Biology will get optimum use of the subject if you have the knowledge level of 2 ^o de Bachillerato for the subject of Biology.
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General objective (9)

Get a complete, integrated view of the cell as the morphological and functional coordination with the rest of the cells in multicellular organisms.

Skills / Abilities:

General (10):

Acquire a solid theoretical, practical, technological and humanistic training necessary for the development of professional activities.
Promoting the concern of knowledge as a key tool in the process of personal and professional growth of students.
Develop the ability to search, of assimilation, analysis, synthesis and of information relationship.
Know the principles and basic tenets of the experimental sciences and humanities.
Develop habits of oral and written communication.
Understand the principles and fundamental laws of physics, mathematics, chemistry and biology as the basis of the mental structure of biotechnologist.
Acquire the skills required for experimental work: design, implementation, collection of results and drawing conclusions, understanding the limitations of the experimental approach.
Ability to work as a team and manage groups.
Acquiring the ability to, synthetic, reflective, critical, theoretical, practical and analytical thought.
Know how to plan time effectively.
Develop the capacity and commitment of own learning and personal development.

Specific (10):

Understand the structure and function of the different compartments and organelles of the cell as well as the relations established between them.
Knowing the cell as the morphological and functional unit as well as regulating cellular mechanisms.
Work properly in a laboratory with biological material (bacteria, fungi, viruses, animal and plant cells, plants and animals) including security, handling and disposal of biological waste.
Properly organize and plan work in the laboratory.
Identify and define instruments and laboratory materials.
Able to describe, quantify, analyze and critically evaluate the results of experimental work in the laboratory.
Develop habits of rigorous thought.
Ability to communicate orally and in writing the acquired knowledge.
Know how to apply theoretical knowledge to problem solving and case studies related to various subjects.
Learn teamwork and coordinated effectively.
Being able to self-evaluate the knowledge acquired.

Brief index to subjects (12):

I. Introduction and basic concepts
ITEM 1. Introduction. Concept of Cell Biology. Cell theory
ITEM 2. Origin and evolution of cells. Cellular diversity

II. Organization of the eukaryotic cell
ITEM 3. Cell membranes
ITEM 4. Transport through membrane
ITEM 5. Nucleus
ITEM 6. Structure, replication and transcription of genetic material
ITEM 7. Cytosol
ITEM 8. Endoplasmic reticulum
ITEM 9: Golgi apparatus
ITEM 10: Vesicular traffic
ITEM 11. Mitochondria, chloroplasts and peroxisomes
ITEM 12. Cytoskeleton

III. Cellular regulation
 ITEM 14. Cell adhesion, cell junctions and extracellular matrix
 ITEM 15. Cell signaling
 ITEM 16. Cell cycle
 ITEM 17. Cell división

Teaching Activities (13) (Approximate % as a function of total credits, considering solely those activities where the student's presence is required and that these represent between 30% and 40%)

Theory classes:	65%
Practical Classes:	30%
Workshops/Labs/Presentations:	5%
Others:	0%
Total:	100%

Evaluation system:

Examinations:	60%
Assistance and participation:	0%
Course work:	10%
Others:	30%
Total:	100%

Specifics of evaluation (14):

- Written exam consisting of multiple choice objective questions and / or short-answer questions: 60%
- Preparation and submission of papers: 10%
- Implementation of practical work in the laboratory: 20%
- Preparation and presentation of exercises and case studies: 10%

Basic bibliography (15):

Alberts, B. et al. (200). *Molecular Biology of the Cell*. 5th ed. Garland Science, New York and London.
 Alberts, B. et al. (2009). *Essencial Cell Biology*. 3rd ed. Garland Science, New York and London.
 Becker, W.M. et al. (2009). *The World of the Cell*. 7th ed. Benjamin Cummings, San Francisco.
 Cooper, G.M. et al. (2009). *The Cell: a Molecular Approach*. 5th ed. ASM Press, Washington, DC.
 Lodish, H. et al. (2008). *Molecular Cell Biology*. 6th ed. W.H. Freeman & Co., New York.
 Lewin, B. et al. (2007). *Cells*. Jones and Barlett, Sudbury (MA).
 Paniagua, R. et al. (2007). *Biología Celular*. 3ª ed. McGraw-Hill/Interamericana, Madrid.

- (1) Code of the course
- (2) Description as per the Verified Memorandum
- (3) May be either: Basic Teaching, Obligatory, Optional, External Practices, or Final Degree Work.
- (4) May be either: First Year - 1st semester and (or) 2nd semester; Second Year - 3rd semester and (or) 4th semester; Third Year - 5th semester and (or) 6th semester; Fourth Year – 7th semester and (or) 8th semester.
- (5) The language in which the course will be taught
- (6) The total number of hours that the student will dedicate to the course. Being approximately twenty-five hours for each ECTS, accounting for all activities.
- (7) Between three and five phrases that summarize the description of the course.
- (8) Corresponds to those recommendations to aid taking the course. A brief recommendation is written. If they are not required, one specifies "those corresponding to the degree".
- (9) Set out the general objective of the course, writing a sole objective.
- (10) The skills as set out in the Verified Memorandum along with the abbreviations corresponding to each of them
- (11) One can add various other skills that are not in the Verified Memorandum and which the teacher deems relevant
- (12) The main thematic blocks of the course
- (13) In this case neither tutorials nor evaluations are included. Only those activities where the student is present.
- (14) Explain the process of evaluation that has been set out previously in percentages with three brief phrases
- (15) Three to ten references should be detailed.

