

SUBJECT TEACHING GUIDE

G1921 - Molecular Biology of the Cell

Degree in Biomedical Sciences

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Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Degree in Biomedical Sciences Degree in Biomedical Sciences			Type and Year	Core. Year 1 Core. Year 1
Faculty	Faculty of Medicine				
Discipline					
Course unit title and code	G1921 - Molecular Biology of the Cell				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. BIOLOGIA MOLECULAR				
Name of lecturer	ALBERTO SANCHEZ DIAZ				
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Other lecturers	JAVIER LEON SERRANO JUAN CARLOS ZABALA OTAÑO MARIA DOLORES DELGADO VILLAR MAGDALENA MARIA FOLTMAN				

3.1 LEARNING OUTCOMES

- Integrate molecular and metabolic bases of the human body to understand human pathology.
- List the cellular mechanisms to store genetic information, their levels of organization, as well as the molecular mechanisms of DNA replication, repair and recombination.
- Distinguish between the molecular mechanisms that regulate gene expression and the epigenetic mechanisms that regulate gene expression.
- Identify protein synthesis, protein folding, protein post-translational modifications, protein degradation, as well as intracellular protein traffic.
- List the molecular biology of the cytoskeleton, the junctions between cells, and the characteristics of the extracellular matrix.
- Identify the molecular mechanisms of cell communication and those that promote progression through the cell cycle, cell death, senescence, and cell turnover.

4. OBJECTIVES

Know the molecular bases of the main biological cellular processes and the functions of its macromolecules. Establish the relationship between the alterations in these processes with the etiology of the diseases at the molecular and cellular levels. In addition, establish the importance in prevention, diagnosis and treatment of those diseases. Know the experimental procedures that allow acquiring our current understanding.

6. COURSE ORGANIZATION

CONTENTS

1	The course includes theory lectures, practical exercises (bioinformatics and laboratory exercises) and classroom practical exercises which are seminars presented by the students under the advice of the professors.
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7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Exam 1	Written exam	No	Yes	40,00
Exam 2	Written exam	Yes	Yes	40,00
Practical Classroom Exercises	Work	No	No	10,00
Laboratory Exercises Exam	Written exam	No	No	3,50
Bioinformatics Exercises Exam	Activity evaluation with Virtual Media	No	No	1,50
Continuous Evaluation	Activity evaluation with Virtual Media	No	No	5,00
TOTAL				100,00
Observations				
<p>The students will take two regular tests. University faculty sets dates for tests and are included in the official calendar .</p> <p>Each test has a maximum score of 4 points over the final mark. To pass the course it is required to get a minimum of 2 points in each of the regular tests and a total of 5 points. If a student gets less than 2 points in a regular test, then the student will need to take an exam in the extraordinary call. Marks of passed regular exams will be held during the academic year.</p> <p>Using digital tools, continuous evaluation will take place and will influence the student's final marks</p> <p>Regular and extraordinary exams will include different kind of questions : multiple-choice, true/false, filling the gap, short answer questions, together with questions in which students will have to write in detail about a particular content of the subject. The professor in charge of each section will describe the exam structure. The structure of the extraordinary exam might be different from regular exams, although always including the same kind of questions described above. The professor in charge of each section will describe the exam structure.</p> <p>The classroom practical exercise will consist in the preparation of an oral presentation by the students of topics selected by the corresponding professor. This presentation will have a maximum value of 1 point.</p> <p>Attendance and participation in practical classroom exercises, practical laboratory classes and bioinformatics practical exercises are compulsory. Failure to attend to practical classes and student's oral presentations will need to be officially justified. Third unjustified lack of attendance will induce the failure in the activity and in the subject. Students from previous academic years will not need to attend laboratory and bioinformatics classes.</p> <p>Under any circumstances in which student might be unable to attend practical classroom exercises, practical laboratory classes or bioinformatics practical exercises, it is highly recommended student should contact in advance the head of the subject.</p> <p>On line teaching measures for evaluation</p> <p>Digital platforms could be used such as Socrative o Moodle to evaluate students. An oral examination using phone call or videocall could be used. The exam structure will be announced previously.</p> <p>Following the University of Cantabria Regulation, professors will need to identify students by video call or email. In addition, videoconference might be used during the exam. Should any problems using the digital platform during the exam occurred, professors would perform an oral examination on those students that were not able to finish their exams.</p>				
Observations for part-time students				
Part-time students must attend all compulsory practical exercises and they must go through the evaluation process as the rest of the students.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

G.M. Cooper. The Cell, A Molecular Approach, 8th ed, 2019. Sinauer, Oxford University Press (ISBN-10: 1605358630)

G.M. Cooper and R.E. Hausman. The Cell, A Molecular Approach, 7th ed, 2016. Sinauer (ISBN 9781605352909)

G.M. Cooper and R.E. Hausman. La Célula, 7ª ed, 2018. MARBAN (ISBN-10: 8417184546)

Alberts B. et al. Molecular Biology of the Cell, 6th ed, 2014. Garland Science (ISBN 9780815344322)

Alberts B. et al. Biología Molecular de la Célula, 6ª ed, 2016. OMEGA (ISBN 9788428216388)

En la bibliografía básica se incluyen diferentes ediciones del mismo texto o su versión en inglés o castellano.