



## COURSE GUIDE

2024/25

**Faculty** 310 - Faculty of Science and Technology

**Cycle** .

**Degree** BMYBM204 - Master in Molecular Biology and Biomedicine

**Year** .

## COURSE

501104 - Advanced Workshop on Molecular Biology

**Credits, ECTS:** 5

## COURSE DESCRIPTION

Rapid advances in biology have had a major impact on our society. From the production of new drugs, to revolutionary advances in our understanding of how cells work, the development of molecular biology has provided a new and completely different way of understanding living organisms and has contributed to our lives in a number of ways.

Molecular biology is the field of biology that studies the composition, structure and interactions of cellular molecules - nucleic acids, proteins, lipids and carbohydrates- that carry out the biological processes essential for the cell's functions and maintenance. The youngest of the biosciences, molecular biology is closely interrelated with the fields of biochemistry, genetics and cell biology.

By understanding how cells work at the molecular level in healthy and diseased states, molecular biologists working in animal, plant and medical science are being able to develop new vaccines, more effective medicines, plants with improved qualities and, through increased knowledge, are gaining a better understanding of how all living organisms live.

In this context, the Workshop in Molecular Biology endeavors to transmit state-of-the-art knowledge in the field of molecular biology and to contribute to the training and professional development of our masters students in this field. This training is accomplished through lectures offered by an internationally recognized panel of scientists who are experts in different disciplines of molecular biology. Lecturers introduce students to the latest advances in the field, promote among the students the active discussion of the topics covered during the lectures, including the experimental designs and research methods.

## COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

### COMPETENCIAS DE LA ASIGNATURA

### RESULTADOS DE APRENDIZAJE DE LA ASIGNATURA

El estudiante, para superar esta asignatura, deberá demostrar los siguientes resultados:

Ser capaz de leer críticamente la literatura científica en Biología Molecular y Biomedicina, y de percibir claramente los avances actuales y los posibles desarrollos futuros.

Conocer las formas de búsqueda (Bibliotecas y Hemerotecas especializadas, consulta de revistas on-line y de bases de datos en Internet) de la información biológica más reciente y relevante para resolver problemas técnicos y profesionales del campo.

Ser capaz de diseñar experimentos que conduzcan a la resolución de un problema científico concreto en el área de la Biología Molecular y Biomedicina.

Estar entrenado en la comunicación y presentación pública de los aspectos fundamentales de su conocimiento científico a otros profesionales de su área

Tener una base para ser original en el desarrollo y/o aplicación de ideas, especialmente en un contexto de investigación científica.

## Theoretical and Practical Contents

Session 1.- Deciphering the transcriptional essence of prostate cancer progression.  
Speaker: Verónica Torrano (UPV/EHU)

Session 2.- The cellular antenna: the role of primary cilia in development and disease.  
Speaker: Jim Sutherland (CIC-BioGUNE, Derio)

Session 3.- Neural stem cells and neurogenesis.  
Speaker: Juan Manuel Encinas (Achucarro Center for Neurosciences, Leioa)

Session 4.- Using structural virology to harness viral pathogenesis.  
Speaker: Nicola Abrescia (CIC-BioGUNE, Derio)

Session 5.- Looking for pharmacological targets in myocardial fibrosis.  
Speaker: Ana Villar (Instituto de Biomedicina y Biotecnología, Santander)

Session 6.- Magnetic Resonance Imaging. Basic principles and biomedical applications.



Speaker: Pedro Ramos (CIC-bioMagune, Donostia)

Session 7.- Cells and materials for disease modeling and regenerative medicine.

Speaker: Ander Abarategi (CIC-bioMagune, Donostia)

Session 8.- Cancer Immunology and Immunotherapy.

Speaker: Asís Palazón (CIC-BioGUNE, Derio)

Session 9.- How to write a review paper (including instructions for workshop evaluation).

Speaker: Ana Zubiaga (UPV/EHU)

Session 10.- Toward efficient treatments of muscular dystrophies.

Speaker: Ainara Vallejo (Biodonostia Health Research Institute, Donostia)

Session 11.- Glutamine addiction in cancer cells.

Speaker: Raúl Durán (Centro Andaluz de Biología Molecular y Biomedicina, CABIMER, Sevilla)

#### METODOLOGIA (ACTIVIDADES FORMATIVAS)

Actividad Formativa	Hours	Porcentaje presencialidad
Exercises	20	50 %
Expositive classes	50	75 %
Written discussion of a topic	55	15 %

#### TYPES OF TEACHING

Types of teaching	M	S	GA	GL	GO	GCL	TA	TI	GCA
Hours of face-to-face teaching	25	25							
Horas de Actividad No Presencial del Alumno/a	38	37							

**Legend:** M: Lecture-based S: Seminar GA: Applied classroom-based groups  
 GL: Applied laboratory-based groups GO: Applied computer-based groups GCL: Applied clinical-based groups  
 TA: Workshop TI: Industrial workshop GCA: Applied fieldwork groups

#### Evaluation tools and percentages of final mark

Denominación	Ponderación mínima	Ponderación máxima
Attendance and participation	10 %	40 %
Otros: Elaboración individual de informe	20 %	50 %
Multiple-choice examination	5 %	10 %

#### ORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

Attendance is compulsory. Excused absences may be made up with the activity indicated by the person in charge of the session.

The intervention of the student in the classes will be valued, the questions and comments made in each session will be valued. A high participation and attendance to 100% of the sessions allows to pass the course.

An unexcused attendance of less than 80% of the sessions will result in the failure of the course. In the case of absence with a justified cause (more than 30%), an exam/test of the subject adjusted to the specific situation will be carried out.

The evaluation tests of the course will be adjusted to the characteristics of the group and will be made explicit at the beginning of the course.

#### EXTRAORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

The extraordinary call will involve the realization of an exam/test of the subject that will consist of the development of a topic of the subject to choose between two chosen at random.

#### MANDATORY MATERIALS

The student will have at his disposal the Egela digital platform for the subject.

For each session, the student will be provide in advance with 5 original papers or reviews related to the topic of the session, selected by the speaker.



## BIBLIOGRAPHY

### Basic bibliography

All the material for the course will be available in Egela.

### Detailed bibliography

### Journals

### Web sites of interest