

Recent Advances in Genetics

Code: 42924
ECTS Credits: 6

2025/2026

Degree	Type	Year
Advanced Genetics	OB	0

Contact

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Teachers

Laura Rubio Lorente

Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

The prerequisites for this module are those required to be admitted in the Advanced Genetics Master Program:

- B1 level of english
- Degree in Biosciences, Medicine, Pharmacy or Veterinary medicine

Objectives and Contextualisation

- Extend the vision and interest of students towards different research fields not covered in the rest of the modules.
- Provide students with key knowledge and basic understanding of border issues in Genetics.

Competences

- Analyse the research results to obtain new products or processes valuing their industrial and commercial viability for transfer to society.
- Demonstrate a mastery of genetic analysis as a transversal tool applicable to any field of genetics.
- Demonstrate responsibility in management of information and knowledge.
- Design and apply scientific methodology in resolving problems.

- Develop critical reasoning in the area of study and in relation to the scientific and business environments.
- Identify and use biocomputing tools to contribute to knowledge of the genomics of different organisms.
- Integrate genetic analysis at different levels of complexity (molecular, cell, individual, population) to coherently resolve different problems in the area of genetics.
- Integrate knowledge of the possible alterations in DNA with their consequences for living beings.
- Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context.
- Student should possess an ability to learn that enables them to continue studying in a manner which is largely self-supervised or independent.
- Students should be capable of integrating knowledge and facing the complexity of making judgements using information that may be incomplete or limited, including reflections on the social and ethical responsibilities linked to that knowledge and those judgements.
- Students should know how to apply the knowledge they acquire and be capable of solving problems in new or little-known areas within broader contexts (or multidisciplinary contexts) related to their area of study.
- Understand the genetic techniques necessary for improving biological processes and their acceptability in economic and health terms.
- Use and manage bibliographical information and other resources related to genetics and related fields.
- Use scientific terminology to argue the results of the research and show how to communicate in spoken and written English in an international setting.

Learning Outcomes

1. Analyse and compare current methodologies in the context of applicability to genetics.
2. Analyse the research results to obtain new products or processes valuing their industrial and commercial viability for transfer to society.
3. Apply bio computing information in complete genome association studies.
4. Carry out individual projects.
5. Demonstrate responsibility in management of information and knowledge.
6. Design and apply scientific methodology in resolving problems.
7. Develop critical reasoning in the area of study and in relation to the scientific and business environments.
8. Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of in a research context.
9. Preparation of work related to the module content.
10. Students should be capable of integrating knowledge and facing the complexity of making judgements using information that may be incomplete or limited, including reflections on the social and ethical responsibilities linked to that knowledge and those judgements.
11. Understand the genetic tools used in gene therapy.
12. Use genetic analysis in the interpretation of those theoretical concepts and the valuation of the experimental results.
13. Use knowledge of changes in DNA to explain mechanisms such as evolution and genetic make-up.
14. Use scientific terminology to argue the results of the research and show how to communicate in spoken and written English in an international setting.
15. Write critical summaries about the taught seminars.

Content

The course is structured around a series of lectures presented by renowned specialists from different areas such as biomedicine, agrogenomics, microbiology, gene therapy, toxicology, genomics, or metagenomics, among others.

The names of the speakers and the titles of the lectures will be announced on time via Campus Virtual.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	38	1.52	
Type: Supervised			
Portfolio	17	0.68	
Type: Autonomous			
Self-study	85	3.4	

- Lectures taught by an invited specialist. Attendance to the conferences is mandatory.
- Throughout the course, students are required to develop a portfolio consisting of summaries of each seminar attended. These summaries must be submitted periodically via Campus Virtual and should reflect the key topics discussed during the lectures. Submission of all summaries is mandatory. Together, these documents will constitute the student's portfolio - a comprehensive collection of evidence demonstrating the student's learning and engagement throughout the course.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Attendance to lectures	50%	1	0.04	7, 8, 10, 14
Portfolio	50%	9	0.36	2, 1, 3, 11, 5, 7, 6, 15, 4, 8, 9, 10, 13, 12, 14

ASSESSMENT CRITERIA

Since the lectures constitute the entirety of the training activities, attendance is compulsory and will be monitored throughout the course. Attendance accounts for 50% of the final grade. The remaining 50% will be based on the portfolio, which includes the periodic submission of summaries for each seminar attended.

SINGLE AVALUATION OPTION

Students who request it will be entitled to a single evaluation. This will consist of a comprehensive test assessing all the content covered in the 12-13 lectures and seminars. The result of this test will represent 50% of the final grade, while the remaining 50% will be based on mandatory attendance to the seminars, which is required in all cases.

USE OF AI

For this course, the use of Artificial Intelligence (AI) technologies is permitted exclusively for support tasks, such as literature or information searches, text editing, or translations. Students must clearly identify which parts have been generated using this technology, specify the tools used, and include a critical reflection on how these tools have influenced both the process and the final outcome of the activity. Failure to be transparent about the use of AI in this graded activity will be considered a breach of academic integrity and may result in a partial or total penalty on the activity's grade, or more severe sanctions in serious cases.

Bibliography

Since the speakers and their talks' content may change every year, the bibliography for each topic will be uploaded weekly to the virtual campus and/or given at each one of the conferences.

Software

Not required

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(TEm) Theory (master)	1	English	first semester	morning-mixed