Recent Advances in Genetics 2015/2016

Code: 42924
ECTS Credits: 6

Degree	Type	Year	Semester
4313802 Advanced Genetics	OB	0	1

Contact

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Use of languages

Principal working language: english (eng)

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 fields not covered in the rest of the modules.
- Provide students with key knowledge and basic understanding of border issues in Genetics.

Skills

- 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 thirteen lectures presented by renowned specialists from different areas.

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

Methodology

- Lectures. Taught by an invited specialist. Attendance to the conferences is mandatory.
- Development of a portfolio. Throughout all the course, students must submit periodically a summary via Campus Virtual on the topics discussed in the lectures. These deliveries (required in all cases) constitute the portfolio of the student, the collection of evidence of student learning.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Lectures	27	1.08	5, 7, 8, 10, 14
Type: Supervised			
Portfolio	18	0.72	1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 13, 14, 15
Type: Autonomous			

Self-study	95	3.8	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

Evaluation

Since the lectures constitute all training activities, attendance to the lectures is compulsory and will be monitored throughout the course (20% of the final grade). In addition, students will be evaluated by the portfolio (80% of the final grade). Students must have an updated portfolio throughout the Virtual Campus where the different deliveries must be picked up.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Attendance to lectures	20%	1	0.04	8, 10
Portfolio	80%	9	0.36	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15

Bibliography

The bibliography for each topic will be given at each one of the conferences.