

MSc in Bioinformatics for Health Sciences

GAS. Genomes and Systems

Syllabus Information

Academic Course: 2018/19

Academic Center: 804 - Official Postgraduate Programme in Biomedicine

Study: 8045 – Bioinformatics for Health Sciences - MSc

Subject: 30136 – GAS. Genomes and Systems

Credits: 5.0

Course: 1st

Teaching languages: English

Teachers: Tomas Marques, Hafid Laayouni, David Juan, Arcadio Navarro, Francesc Calafell, Ferran Casals, David Comas, Elena Bosch, Jaume Bertranpetit

Teaching Period: 1st term

Presentation

This course gives an in-depth view on the biological implications of genome variation, including individual and species differences, from single base differences to chromosomal reorganizations. Both its evolutionary base and its functional implications will be approached. It will give a fresh view to many aspects of present biology, including genetic bases for complex diseases, evolutionary medicine, functional analysis, structural biology, comparative genomics and many others.

Associated skills

General competences:

1. Learning general theoretical aspects related to the comparative genomics and human genomics field.
2. Genomic bases for a better understanding of human diseases including cancer
3. Genomic bases for human evolutionary genomics

Specific competences:

1. Understanding scientific papers and presenting a summary

Contents

Contents section 1:

- Introduction
- Dynamics of variation in genomes
- Applications of genetic analysis

Contents section 2:

Paper sessions (2 papers per student, one disease, one evolution).

Teaching methods

Approach and general organization of the subject

All sessions of this course, are lectures by a team of teachers with experience in the field of interest. One of the main interests for students is the fact that the course is based on the presentation two papers from each student with interest in both evolution and disease. Presentation time will be allocated to several full sessions.

Training activities

The students are expected to attend to most of the theoretical classes and all the presentation by their peers.

Programme of activities

Estimated time spent on the subject:

- In the classroom: 40 hours
- Outside the classroom: 85 hours

Evaluation

Assessment system

Presentation of the two scientific articles

Final exam

Grading system

Presentation of the two scientific articles (60%)

Final exam (40%)