

Molecular Anthropology

Code: 100752
ECTS Credits: 6

| Degree | Type | Year | Semester |
|-----------------|------|------|----------|
| 2500250 Biology | OT | 4 | 0 |

Contact

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Use of languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Other comments on languages

All supporting materials will be in English. Classes will be taught in Catalan and some in English. Students performing the course work in English will have a plus in the final classification of the work of up to 1 point.

Prerequisites

It is recommended to have acquired the basis of the courses of Genetics, Molecular Genetics, Human Biology, Health and Environment, and Evolution.

Objectives and Contextualisation

The course of Molecular Anthropology is integrated in the field of Human Biology. It is a relatively new field of research, in fact, there have been less than 50 years since Emil Zuckerkandl, in the symposium "Classification and Human Evolution" (1962, Wartenstein Burg, Austria), formally introduced the designation. As the name suggests, Molecular Anthropology, focuses on the study of human evolution and variation using molecular tools.

The main objective of this course is to deepen in the study of the tools and methods used in the study of variation and evolution of humans. In this regard, it stresses the Human Genome Diversity Project as a turning point for Molecular Anthropology since it has played a key role in changing perspective of Molecular Anthropology from genetics to genomics. The most recent projects to analyze human variation, the 1000 Genomes and HapMap, will be discussed. The problems of the study of human genetic variation in both recent and ancient remains will be explored. Also, the genetic variation as a tool to reconstruct the evolutionary history and for mapping disease susceptibility variants and with pharmacogenomic interest will be approached.

Content

THEORY:

- Unit 1. Foundations of molecular anthropology: from morphology to the HapMap Project and the 1000 genomes project
- Unit 2. Tools and Methods in Molecular Anthropology
- Unit 3. Genetic variations in humans and other primates: Diversity, phylogeography and selection
- Unit 4. Quantitative Genetics: applications in molecular anthropology

Unit 5. Confluence of molecular anthropology and epidemiology
Unit 6. Ancient DNA: problems and applications
Unit 7. Application of molecular anthropology in forensic sciences

SEMINARS:

Research in Biological Anthropology

COMPUTER PRACTICES:

HapMap Project

1000 genomes project

Applications in Genetic Epidemiology

Definitions of work themes and bibliographical search

LAB PRACTICES:

DNA extraction and PCR

Detection of SNPs

DNA sequencing