

**Forensic Anthropology**

Code: 105063  
ECTS Credits: 3

Degree	Type	Year	Semester
2500890 Genetics	OT	4	2

## Contact

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## Teaching groups languages

You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

## Teachers

María Molina Moreno

Nuria Armentano Oller

## Prerequisites

There are no official prerequisites, but it is assumed that the student has previously acquired enough solid knowledge on subjects like Genetics and Human biology

## Objectives and Contextualisation

The course of forensic anthropology is designed to provide students the basic tools to manage biological information about personal identification. It is based on the application of knowledge of physical anthropology and human biology to medical and legal aspects, basically identification. We work at morphological, osteological, biochemical and molecular level. The work identifying both individual and collective lives of individuals, as the recent and ancient corpses. The emphasis in both forensic application, as in the reconstruction of ancient populations.

In this regard the course aims to:

- Understanding human variability as a source of individualization
- To know the morphological variability of characters distinctive of human groups
- To understand and interpret biochemical and molecular variability

- To analyse the biological basis of human diversity by different identification techniques
- To understand the taphonomical effects to interpret forensic situations
- To know the statistical basis of identifications

## Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Apply knowledge of theory to practice.
- Be able to analyse and synthesise.
- Be able to communicate effectively, orally and in writing.
- Define mutation and its types, and determine the levels of genic, chromosomal and genomic damage in the hereditary material of any species, both spontaneous and induced, and evaluate the consequences.
- Describe and interpret the principles of the transmission of genetic information across generations.
- Describe the organisation, evolution, inter-individual variation and expression of the human genome.
- Design and interpret studies associating genetic polymorphisms and phenotypical characters to identify genetic variants that affect the phenotype, including those associated to pathologies and those that confer susceptibility to human illnesses or those of other species of interest.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Make decisions.
- Measure and interpret the genetic variation in and between populations from a clinical, conservational and evolutionary perspective, and from that of the genetic improvement of animals and plants.
- Reason critically.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
- Use and interpret data sources on the genomes and macromolecules of any species and understand the basics of bioinformatics analysis to establish the corresponding relations between structure, function and evolution.
- Use and manage bibliographic information or computer or Internet resources in the field of study, in one's own languages and in English.

## Learning Outcomes

1. Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
2. Apply knowledge of theory to practice.
3. Be able to analyse and synthesise.
4. Be able to communicate effectively, orally and in writing.
5. Describe the role of genetic variation in the human species in the diagnoses, prevention and treatment of illnesses.
6. Describe the structure and variation of the human genome from a functional, clinical and evolutionary perspective.
7. Determine the genetic basis and calculate the risk of recurrence of human illnesses.
8. Enumerate and describe the different techniques for analysing DNA polymorphisms that can be applied to studies of genetic variation associated to human pathologies.
9. Evaluate and interpret genetic variation in human populations and from a clinical and evolutionary perspective.
10. Interpret the results obtained using techniques for the analysis of DNA polymorphisms to identify and evaluate factors of susceptibility and propensity to suffer illnesses.
11. Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.

12. Make decisions.
13. Reason critically.
14. Recognise genic, chromosomal and genomic anomalies in humans and evaluate the clinical consequences.
15. Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
16. Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
17. Use and manage bibliographic information or computer or Internet resources in the field of study, in one's own languages and in English.
18. Use data sources on the human genome and interpret them.

## **Content**

- Legal framework of forensic anthropological studies
- Identification of living people and recent corpses
- Decay and conservation
- Forensic entomology
- Field anthropology
- Identification from human remains
- Forensic anthropology in major catastrophes

## **Methodology**

The nucleus of the learning process is the work of the student. The student learns working, being the mission of the teaching staff to help him/her in this task by providing information, or showing them the sources where they can achieve the most recent and efficient information. In line with these ideas and in accordance with the objectives of the subject, the development of the course is based on the following activities:

**Theoretical teaching:** The student acquires the scientific and technical knowledge of the course, attending the theoretical classes and complementing them with the personal study of the topics explained. The theoretical classes are conceived as a method of transmitting the teacher's knowledge to the student. However, an important part of the discussion of topics will be proposed or subjects developed using a methodology of Problem-based learning. Whenever possible, students will work in small groups. With enough anticipation, the student will know the topics to debate and discuss on the virtual forums. The audiovisual material used in class will be provided by the teacher through a virtual campus.

**Seminars:** seminars will focus on specific topics of theory. The students will work in small groups allowing them to acquire the ability to work in groups and also to analyze and do synthesis.

**Practices:** The topics related to osteology and diagnoses will be mainly taught in theoretical-practical classes with small groups of students in the laboratory. They are designed to learn osteology and its variability, and are complemented by theoretical information. Students will have a detailed work guidebook. In order to achieve good performance and acquire the corresponding competencies, a comprehensive reading of the proposed practice is essential before its completion. The follow-up of the practical class will also involve the individual

collection of the results in a dossier of activities. To be able to attend the practical classes it is necessary for the student to justify having passed the biosafety and security tests that he will find in the Virtual Campus and be knowledgeable and accept the rules of operation of the laboratories of the Faculty of Biosciences.

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.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Laboratory practices	9	0.36	2, 9, 12, 13, 3, 18
Seminars	2	0.08	6, 8, 13, 4, 3, 17, 18
Theoretical classes	15	0.6	8, 10, 13, 3, 18
Type: Supervised			
Group work	8	0.32	2, 9, 5, 12, 13, 4, 3, 17
Individual work	2	0.08	
Type: Autonomous			
Group work	12	0.48	9, 12, 13, 3
Individual work	25	1	9, 5, 10, 13, 3, 17, 18

## Assessment

As it is a continuous evaluation, the student's participation, the preparation of the seminars, the practical materials and the control grade will be taken into account. The final result will be the weighted sum of each of the parts.

- There will be a written test to evaluate the theoretical part of the subject (50%). It will be necessary to obtain a minimum grade of 4 in this test to be combined with the other evaluation activities. This test can be recovered during the recovery period.
- Practices represent 30% of the final grade. The evaluation will take into account both the attitude of the students and the work done in the laboratory itself and the required questionnaires. Attendance are mandatory and required to pass the subject. The students will obtain the qualification of "Not Evaluable" when the absence is greater than 20% of the scheduled sessions
- The seminar will be used to discuss group work and is equivalent to 20% of the final grade. All students in the same group will have the same grade in this test, but nuanced by the work developed individually within the work.

To pass the subject, the grade must be equal to or higher than 5.

To take part in the recovery, students must have previously been assessed in a set of activities whose weight is equivalent to a minimum of two-thirds of the total grade of the subject or module. Therefore, the student will obtain the qualification of "Not Assessable" when the assessment activities carried out have a weighting of less than 67% in the final qualification.

## Single evaluation

The single evaluation consists of a single synthesis test in which the contents of the entire theory program of the subject will be evaluated. The grade obtained in this synthesis test will account for 50% of the final grade for the subject. The single evaluation test will be done coinciding with the same date set in the calendar for the continuous evaluation test and the same recovery system will be applied as for the continuous evaluation.

The evaluation of the activities of practices and seminars will follow the same process of the continuous evaluation. The grade obtained will mean 50% of the final grade for the course. The students who take advantage of the single evaluation may deliver all the evidence together (practical report and seminar work) on the same day as the one set for the synthesis test. The seminar work can be done individually.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Group work	20%	0	0	16, 15, 5, 12, 13, 4, 3, 17
Participation and work on practices	30%	0	0	1, 15, 2, 9, 6, 7, 10, 12, 18
written test	50%	2	0.08	9, 7, 8, 10, 11, 12, 13, 14, 3, 18

## Bibliography

### Basic literature:

WHITE T, BLACK MT & FOLKENS PA. Human Osteology.- Academic Press (diverses edicions)

LANGLEY, NR AND TERSIGNI-TARRANT MT. (2017) Forensic Anthropology: a comprehensive introducción (2n ed). CRC Press

HAGLUND SD & SORG MH. (1997) Forensic Taphonomy: the postmortem fate of Human Remains. CRC Press

JOBLING, M.A. i HURLES, M.E. (2004). Human Evolutionary Genetics - origin, peoples & disease. Garland Science. Cap. 15

WEINER MP, GABRIEL SB & STEPHENS JC. (2007) - Genetic variation. A laboratory manual. Cold Spring Harbor. Cap.34

OBERTOVA Z, STEWART A, CATTANEO C (2020).- Statistics and probability in Forensic Anthropology.- Elsevier

### Specific literature

It will be given during the course.

## Software

no aplica