

Human Biology

Code: 100836
ECTS Credits: 6

Degree	Type	Year	Semester
2500251 Environmental Biology	OT	4	1

Contact

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Use of Languages

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

Teachers

María Pilar Aluja París
Maria Eulàlia Subira de Galdacano

Prerequisites

A working knowledge of the material of the courses genetics is required.

Objectives and Contextualisation

The science of Human Biology studies the variability of the species Homo sapiens sapiens, both from the morphological aspect, as well as from the development and genetics of our species. The subject of Human Biology is structured in two well differentiated parts:

- A) the knowledge of the origin and evolution of our species, i
- B) current human variability, both morphological and physiological and genetic.

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Communicate efficiently, orally and in writing.
- Describe, analyse and interpret the vital adaptations and strategies of the principal groups of living beings.
- Develop strategies of analysis, synthesis and communication in order to teach biology and environmental studies.
- Focus on quality.
- Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
- Manage information
- Obtain information, design experiments and interpret results.

- Reason critically.
- Recognise and analyse phylogenetic relations.
- Sample, characterise and manipulate populations and communities.
- 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.

Learning Outcomes

1. Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
2. Actuar en l'àmbit de coneixement propi avaluant les desigualtats per raó de sexe/gènere.
3. Communicate efficiently, orally and in writing.
4. Design and execute samplings of animal populations and communities in their habitats.
5. Focus on quality.
6. Interpret the evolutionary processes that have led to animal diversity.
7. Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
8. Manage information
9. Obtain information, design experiments and interpret results.
10. Reason critically.
11. Recognise the basic principles of biology that must be conveyed in the field of secondary education.
12. Recognise the characteristics of the environment that determine the distribution of the principal animal groups.
13. Take account of social, economic and environmental impacts when operating within one's own area of knowledge.

Content

- T.1. Human as a primate
- T. 2. Primates and Human Evolution
- T. 3. Chronological methods
- T. 4. Methods of environmental reconstruction
- T. 5. Miocene Period
- T. 6. Bipedalism
- T. 7. **Homo**
- T. 8. Upper Pleistocen **Homo's**
- T. 9. Mechanisms of human evolution
- T. 10. Biodemography of human populations
- T. 11. Human variability: Levels of analysis
- T. 12. Human blood groups: characteristics and geographical distribution
- T. 13. Evolution of the life cycle
- T. 14. The physical environment
- T. 15. Human nutritional stress and disease

Methodology

The development of the formative activities of Human Biology subject will realize through: theory classes, seminars, realization of a work and practical laboratory sessions. Each one of these typologies with its own methodology. These activities will be complemented by a series of tutoring sessions.

Theoretical classes: In these classes the students acquire the scientific knowledge of the subject. These are master classes with ICT support, which are complemented by personal study of the topics presented. The audiovisual material used in class can be found by students in the "teaching material" tool of the Virtual Campus. These classes are conceived as a fundamentally unidirectional method of transmitting knowledge from teachers to students that forces them to develop autonomous learning strategies outside the classroom.

Seminars: In advance, teachers will provide students with the necessary documentation to discuss in the seminars; the students must have prepared them from the material delivered previously to the Virtual Campus (contribution of material by the students and the teacher, debate).

Practical laboratory sessions: Students come into contact with laboratory equipment and techniques. The results will be discussed at the end of each practice and / or the evaluable materials will be collected. Students will be able to access the protocols and practice guides through the Virtual Campus. The knowledge acquired in theory classes and in personal study is applied to the resolution of practical cases. Students work in small groups, enabling them to acquire the ability to work in groups, analyze and synthesize. It also allows you to apply statistical resources in the interpretation of data.

Tutorials: The aim of these sessions is multiple: to resolve doubts, to carry out debates on topics that have been proposed in class, to orient on the sources consulted by the students and to explain the use of the tools of the Virtual Campus necessary for the proposed activities. These sessions are not expository nor do they advance the subject matter, but they are sessions of debate and discussion. Much of the content of the tutorial sessions is based on the work done by the student autonomously.

Work: The first day of class, a list of works will be provided to the students. Each one must choose a work from the list. Throughout the execution of the work, students will be tutored and supervised. The work will have to be exposed and will be evaluable.

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			
seminars	4	0.16	1, 2, 13, 3, 4, 5, 8, 7, 10
theory	35	1.4	1, 2, 13, 8, 7, 10, 11, 12
Type: Supervised			
Practices	13	0.52	1, 2, 13, 3, 4, 8, 7, 9
Preparation, presentation and defense of group work	39	1.56	1, 2, 13, 3, 8, 6, 7, 10, 11
Type: Autonomous			

Assessment

In the case of a continuous assessment, the participation of the students, the preparation of the seminars, the practice materials and the score of the controls will be taken into account. In order to attend, the student must justify having passed the biosafety and safety tests found on the Virtual Campus and be knowledgeable and accept the operating rules of the laboratories of the Faculty of Biosciences.

For the evaluation of the subject there will be two eliminatory controls with a weight each of 20% of the subject. Students who have not passed any of the controls through continuous assessment will have a recovery check of the part they have not passed.

The minimum grade for each of the assessable parts will be 4. To pass the course the grade must be equal to or greater than 5.

Students who pass both tests will be allowed to raise the grade with an integrative control of the entire subject. In this case, the grade to be considered will be the latter regardless of whether it is higher or lower than the one obtained previously.

The work itself will have a weight of 35% of the grade and will be done following the guidelines that will be published on the virtual campus.

With regard to laboratory practices, attendance is compulsory and the attitude, skill and various materials that the teacher will give to the students according to the practice (problems, questionnaire, ...) are valued. Attendance at practical sessions is mandatory. Students will be graded as "Not Evaluable" when the absence exceeds 20% of the scheduled sessions. The weight of the practices in the final note of the asignatura is of 15%.

The seminars will be worked on in class and will be assessed with the delivery of questions and problems delivered on the same day of the seminar. The weight will be 10%.

To participate in the recovery, students must have been previously 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, students will obtain the grade of "Not assessable" when the assessment activities performed have a weighting of less than 67% in the final grade.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Practices material	15%	0	0	1, 2, 13, 3, 5, 8, 6, 7, 9, 10, 11
Preparation, presentation and defense of group work	35%	0	0	1, 2, 13, 3, 4, 5, 8, 6, 7, 9, 10
exams	40%	0	0	1, 2, 13, 3, 4, 8, 6, 7, 9, 10, 11
seminar material	10%	0	0	1, 2, 13, 3, 5, 8, 7, 11, 12

Bibliography

LITERATURE

Robert BOYD, Joan B. SILK. 2004. *Como evolucionaron los humanos*. Ariel Ciencia.

- David N. COOPER, i Hildegard KEHRER-SAWATZKI. 2008. *Handbook of Human Molecular Evolution*. Wiley.
- Lucio G. COSTA i David L. EATON. 2006. *Gene-Environment interactions - Fundamentals of Ecogenetics*. Wiley-Liss.
- John FLEAGLE. 2013. *Primate adaptation & Evolution*. Academic Press.
- Geoff DANIELS. 2013. *Human Blood Groups*. Blackwell Science. A John Wiley & Sons, Ltd., Publication.
- Jokin de IRALA-ESTÉVEZ, Miguel ángel MARTÍNEZ GONZÁLEZ, Maria SEGUÍ GOMEZ. 2004. *Epidemiología Aplicada*. Ariel Ciencias Médicas.
- Mark A. JOBLING, Mathew HURLES i Chris TYLER-SMITH. 2004. *Human Evolutionary Genetics - origin, peoples & disease*. Garland Science.
- Marina LOZANO i Xose Pedro RODRÍGUEZ. 2010. *D'on venim? l'origen de l'Homo sapiens*. Ed: Rafael Dalmau, col·lecció evoluciona núm 2.
- Robert JURMAIN, Lynn KILGORE, Wenda TREVATHAN I Eric BARTELINK 2009. *Essentials of Physical Anthropology*. Wadsworth Cengage Learning.
- Mark LUCOCK. 2007. *Molecular Nutrition and Genomics Nutrition and the Ascent of Humankind*. Wiley-Liss.
- Emilio F. MORAN. 2008. *Human Adaptability - An introduction to Ecological Anthropology*. Westview press.
- Michael P. MUEHLENBEIN. 2010. *Human Evolutionary Biology*. Cambridge University Press.
- Michael PARK. 2013. *Biological Anthropology*. Published by Mc Graw-Hill. Seventh Edition.
- Esther M. REBATO, Charles SUSANNE i Brunetto CHIARELLI. 2005. *Para comprender la antropología biológica. Evolución y Biología Humana*. Ed Verbo Divino
- von Marion E. REID, Christine LI OMAS-FRANCIS i Martin L. OLSSON. 2012. *The Blood Group Antigen*. FactsBook. Elsevier Ltd.
- Herve SELIGMANN i Ganesh WARTHI. 2018. *Mitochondrial DNA: New Insights*. University of Chicago, United States.
- Mark STONEKING. 2016. *An Introduction to Molecular Anthropology*. John Wiley & Sons, Incorporated.
- Michael P. WEINER, RainDance Technologies, Inc., Guilford, Connecticut; Stacey B. Gabriel, The Broad Institute, Massachusetts Institute of Technology, Cambridge; J. Claiborne Stephens, Motif BioSciences, New York (Editors). 2007. *Genetic variation: a laboratory manual*. Ed Cold Spring Harbor: Cold Spring Harbor Laboratory Press, cop.

SPECIFIC LITERATURE

It will be given during the course.

Software

Becoming Human: www.becominghuman.org

The surprising science of alpha males - Frans de Waal: <https://www.youtube.com/watch?v=BPSSKKL8N0s>

Cognició i memòria en ximpanzés: <https://www.youtube.com/watch?v=ktkjUjcZid0>

Article: Andrews (2020) Last Common Ancestor of Apes and Humans: Morphology and Environment. *Folia Primatologica* 91:122-148. <https://www.karger.com/Article/Pdf/501557>

Models de cranis 3D: <https://www.morphosource.org>

Models de cranis i eines de pedra 3D: <https://africanfossils.org/>

A timeframe for human evolution:

<https://naturecoevocommunity.nature.com/posts/a-timeframe-for-human-evolution>

Origen i adaptacions al bipedisme: <https://www.youtube.com/watch?v=3bFtotU0of4>

The evolution of human mating - David Puts: <https://www.youtube.com/watch?v=OXQwtTOnLvg>

Homo erectus - The First Humans: <https://www.youtube.com/watch?v=MP00uxg-274>

The Neanderthals That Taught Us About Humanity: <https://www.youtube.com/watch?v=h777yfE39O8>

One Species, Many Origins: <https://www.shh.mpg.de/1474609/pan-african-origins>

Evolutionary ecology of primates and hominids <https://human-evolution.blog/>