26437 - Vertebrate and Human Palaeobiology

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	5.0
Year	4
Semester	First semester
Subject Type	Optional
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The learning process that is designed for this subject is based on the following:
The course is focused on publicizing a subject that is of little development during the Geology degree, so the agendas are novel for the student. Therefore the proposed activities are focused on understanding the anatomy of vertebrates, conservation and formation of deposits of fossil vertebrates and systematics of major groups, especially hominins.
To set and work with the knowledge acquired in lectures is complemented with practical laboratory activity and seminars, where the student will learn and demonstrate methods and analysis used and the results of their application. At the

seminar, the student must demonstrate the ability to investigate, if only in the literature, expound and defend the report on issues related Vertebrate Paleobiology.
For better monitoring of the learning process it will be encouraging the students to use the tutorials through various systems and methods: conventional tutorials, more specific tutorials related to practical work-type seminar and the possibility of carrying out telematic tutorials will even offer .
In support, it will be posted on the Web www.aragosaurus.com basic reference material. The program of the course, the teaching guide, summaries of the theoretical issues, scripts practices and diverse complementary material.

5.2.Learning tasks

The program that the student is offered to help him to achieve the expected results includes the following activities:
Participatory Lectures: 17 hours (1.7 ECTS). 44 hours of personal work of a student, essential compound in the study of theoretical issues.
The theoretical program of the subject consists of two parts: 1) The skeleton of vertebrates; 2) Main events in the history of paleontology and paleobiology of vertebrates.

5.3.Syllabus

The program is divided into 23 theoretical subjects, eight subjects of practical classes and guidance for the development of a personal work, theoretical, from specialized scientific literature.
Theoretical topics:
1. The skeleton of vertebrates
1.1. The mineralized tissues of vertebrates
1.2. Orientation of the skeleton of vertebrates
1.3. Parts of the skeleton of vertebrates
2. Main events in the history of vertebrates
2.1. Craniata, the origin of the head in vertebrates
2.2. Swimming and predation
2.3. Adaptations to terrestrial environment. The egg amniota
2.4. Permian reptiles and plate tectonics
2.5. Dawn of the Dinosaurs
2.6. Saurischia
2.7. Ornithischia
2.8. Adaptations to flight: avian dinosaurs, flying reptiles and mammals
2.9. Locomotion vertebrate through their icnitas
2.10. Mesozoic mammals and origin of mammals
2.11. Tertiary mammals. The strange case of South American mammals.
2.12. Quaternary mammals. Adaptations to cold.
2.13. Micromammals and climatic reconstructions in the Quaternary
2.14. Hominids: bipedalism, sexual dimorphism, life in the savannah
2.15. African hominids
2.16. human dispersal in Eurasia: georgicus Homo, Homo antecessor, Homo heidelbergensis
2.17. Neanderthals and early modern humans in Europe
2.18. The conquest of the New World
2.19. Human language in communication of hominids
2.20. Emergence of art and symbolic mind
Practical classes: 18 hours (1.8 ECTS). 45 hours of students including the preparation of the report of each practice.
The practical classes are divided into 8 topics:
1. Orientation of a vertebrate and body regions of vertebrates
2. The cranial and postcranial skeleton.
3. Muscle attachments, joints, biomechanics
4. The teeth of vertebrates and diet
5. Dinosaur Fossils
6. Fossil remains of microvertebrates, biostratigraphy and environmental reconstructions
7. Comparative anatomy of the major groups of mammals.

26437 - Vertebrate and Human Palaeobiology

8. Human Fossils and recognition of the hominid characters.
Development of a practical work-type seminar: 7 hours (0.7 ECTS) and 17 hours of personal work (bibliographical research, attending tutorials, preparing multimedia presentation).
The proposed topics are: 1) Large aquatic vertebrates. sharks; 2) Large Marine Mesozoic vertebrates acuáticos.Reptiles; 3) Large aquatic vertebrates. Cetaceans Paleogene and modern whales; 4) Evolution of vertebrates on the islands; 5) polar dinosaurs; 6) Large predators. theropod dinosaurs; 7) Large predators. carnivorous mammals; 8) The "sails" of the Permian reptiles; 9) The first humans in Europe and Atapuerca; 10) Neanderthals on the Iberian Peninsula.
Field Practical classes: 10 hours (0.8 ECTS). 15 hours of personal work. Analysis, classification and vertebrates paleobiological reconstruction of dinosaur tracks from the Early Cretaceous of the Iberian Range.
Written test (completion of the exam). 4 hours of personal work
Throughout the course, both in practical classes, and theoretical is to use literature and Internet resources in English. In addition to the practical work it is mainly from English literature. All these activities are measured with ECTS 1 credit in English.

5.4.Course planning and calendar

The course will consist of 17 lectures (slightly more than one topic per class) and 9 practices 2 hours. In the first session of seminars bibliographic research work is assigned and the teacher responsible for their care. The start time and duration of theoretical exam of each call will be placed one week in advance on the bulletin board Palaeontology and teaching section of the website www.aragosaurus.com. Each notice shall include a theoretical and practical examination.

5.5.Bibliography and recommended resources

BB	Arsuaga Ferreras, Juan Luis. Atapuerca y la evolución humana / Juan Luis Arsuaga, Ignacio Martínez ; fotografía, Javier Trueba Barcelona : Fundació Caixa Catalunya, D.L. 2004
BB	Arsuaga Ferreras, Juan Luis. El mundo de Atapuerca / Juan Luis Arsuaga ; [con la colaboración de Milagros Algaba y Alfonso Esquivel ; dibujos e ilustraciones de Fernando Fueyo] Barcelona : Plaza y Janés, D.L. 2004
BB	Arsuaga Ferreras, Juan Luis. La saga humana : una larga historia / Juan Luis Arsuaga, ilustraciones de Alfons y Adrie Kennis Madrid : Edaf, 2006
BB	BENTON, M.J. . Vertebrate Palaeontology. 3rd Blackwell. 2005 *[Obs. docente: Si está en Geológicas]*
BB	Benton, Michael J.. Introduction to paleobiology and the fossil record / Michael J Benton, David A.T. Harper Chichester, UK ; Hoboken, NJ : Wiley-Blackwell, cop. 2009

Universidad Zaragoza

26437 - Vertebrate and Human Palaeobiology

BB	Benton, Michael J.. Vertebrate palaeontology : biology and evolution / Michael J. Benton . - [1st.publ.] London, [etc.] : Unwin Hyman, 1990
BB	Kielan-Jaworowska, Zofia. Mammals from the age of dinosaurs : origins, evolution, and structure / Zofia Kielan-Jaworowska, Richard L. Cifelli, and Zhe-Xi Luo New York : Columbia University Press, cop. 2004
BC	Arsuaga Ferreras, Juan Luis. El collar del neandertal : en busca de los primeros pensadores / Juan Luis Arsuaga ; ilustraciones de Juan Carlos Sastre . - 9a. ed. Madrid : Temas de hoy, 1999
BC	Arsuaga Ferreras, Juan Luis. El reloj de Mr. Darwin : la explicación de la belleza y maravilla del mundo natural / Juan Luis Arsuaga ; [ilustraciones de Fernando Fueyo, Carlos Puche y Américo Cerqueira] . 1ª ed. Madrid : Temas de hoy, 2009
BC	Arsuaga Ferreras, Juan Luis. Elemental, queridos humanos : vida y andanzas del ingenioso planeta Tierra / contadas por Juan Luis Arsuaga y Milagros Algaba ; con dibujos de Forges . 1ª ed. Madrid : Temas de Hoy, 2010
BC	Arsuaga Ferreras, Juan Luis. La especie elegida : la larga marcha de la evolución humana / Juan Luis Arsuaga, Ignacio Martínez ; ilustraciones de Mauricio Antón . - 4a ed. Madrid : Temas de Hoy, 1998
BC	Arsuaga Ferreras, Juan Luis. Los aborígenes : la alimentación en la evolución humana / Juan Luis Arsuaga . - 3a. ed. Barcelona : RBA, 2003
BC	ARSUAGA, J. L. . El primer viaje de nuestra vida. Ediciones Temas de Hoy. 2012
BC	ARSUAGA, J. L. . El sello indeleble. Pasado, presente y futuro del ser humano. Ediciones Debate. 2013

Universidad Zaragoza

26437 - Vertebrate and Human Palaeobiology

BC	ARSUAGA, J. L. . Mi primer libro de la prehistoria: Cuando el mundo era niño. Editorial Espasa. 2008
BC	ARSUAGA, J. L. Los primeros europeos: Tesoros de la sierra de Atapuerca.. Junta de Castilla y León. 2003
BC	G. Cuenca-Bescós, G.; Rofes, J. and Garcia-Pimienta J. "Environmental change across the Early-Middle Pleistocene transition: small mammalian evidence from the Trinchera Dolina cave, Atapuerca, Spain". En: Head M. J. & Gibbard P.L. Early Middle Pleistocene transitions: The Land-Ocean Evidence (Special Publications 247). Geological Society of London. 2005. p.277-286.
BC	Martínez Mendizábal, Ignacio. Amalur : del átomo a la mente / Ignacio Martínez, Juan Luis Arsuaga . - 2a. ed. Madrid : Temas de Hoy, 2002
BC	MARTÍNEZ, I., . El primate que quería volar. Espasa Libros S.L.U. 2012
BC	Munibe / Real Socieded Vascongada de Amigos del País, Grupo de Ciencias Naturales "Aranzadi". San Sebastián : Grupo de Ciencias Naturales "Aranzadi", 1949-1983 [Publicación periódica] [El origen del lenguaje: La evidencia paleontológica. Munibe, nº 60, pág. 5-16.]
BC	Olduvai Gorge. Vol.4, The skulls, endocasts and teeth of homo habilis / by P.V. Tobias . Cambridge : Cambridge University Press, 1989
BC	Proceedings of the National Academy of Sciences of the United States of America . Washington, D.C. : National Academy of Sciences, 1915- [Publicación periódica] [Auditory capacities in Middle Pleistocene humans from the Sierra de Atapuerca in Spain. Proceedings of the National Academy of Sciences (USA) 101, 9976-9981.]

26437 - Vertebrate and Human Palaeobiology

BC

WALLACE, D.R. . Neptune's Ark, from Ichthyosaurs to Orcas. Berkeley, University of California. Press. 2007

LISTADO DE URLs:

ALEXANDER, R.M. 1976. Estimates of speeds of dinosaurs. Nature 261, 129-30. - [http://www.nature.com/nature/journal/v261/n5556/pdf/261129a0.pdf]

Aragosaurus - [www.aragosaurus.com]

Human hyoid bones from the middle Pleistocene site of the Sima de los Huesos (Sierra de Atapuerca, Spain). Journal of Human Evolution 54, 118-124. - [http://www.sciencedirect.com/science?_ob=ArticleListURL&_method=list&_Article

The anatomy, physiology, acoustics and perception of speech: essential elements in analysis of the evolution of human speech. Journal of Human Evolution 23, 447-467. - [http://www.sciencedirect.com/science/article/pii/004724849290046C]