

Bioarchaeology

Code: 100714
ECTS Credits: 6

Degree	Type	Year	Semester
2500241 Archaeology	OB	3	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

Maria Saña Seguí
Raquel Piqué Huerta
Laura Obea Gomez
Vanessa Navarrete Belda
Cristina Rihuete Herrada

Prerequisites

The course "Introduction to Archeology" should have been taken previously.

Objectives and Contextualisation

The course is part of the subject area "Field and Laboratory Methods and Techniques" of the degree in Archaeology. There are 36 ECTS of compulsory courses related to this subject area (Methods and field techniques in prehistoric archaeology, Methods and techniques in historical archaeology, Analysis of artifacts, Analysis and study of archaeological materials, Bioarchaeology and Quantitative Archaeology) aiming at providing basic knowledge on methodology and field and laboratory techniques in archaeology.

The Bioarchaeology course emphasizes those methods and techniques associated with archaeozoological, archaeobotanical and ancient human remains. The methods for describing and analysing the variability of the data are presented, introducing aspects such as the testing of statistical hypotheses or the analysis of qualitative and quantitative relationships. The contents of this subject are aimed at giving students the basic tools that are necessary in order to deal with archaeological materials as a category of historical documents.

The course relies in practical training and is designed to provide a problem-oriented approach with the help of practical sessions in the teaching lab.

Competences

- Carrying out and managing archaeology fieldwork: excavation and survey.
- Generating innovative and competitive proposals in research and professional activity.
- Managing the main methods, techniques and analytic tools in archaeology.
- Respecting the diversity and plurality of ideas, people and situations.
- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
- Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.

Learning Outcomes

1. Applying both knowledge and analytical skills to the resolution of problems related to their area of study.
2. Applying implementing protocols of fieldwork and sample collection.
3. Applying proper techniques and analytical tools in case studies.
4. Combining technical resources from similar disciplines.
5. Establishing investigation protocols for original research projects.
6. Interpreting the archaeological fieldwork results by placing them into their historical context.
7. Mastering specific techniques and instrumental resources of archaeological laboratory analysis.
8. Organizing their own time and work resources: designing plans with priorities of objectives, calendars and action commitments.
9. Recognising and implementing the following teamwork skills: commitment to teamwork, habit of cooperation, ability to participate in the problem solving processes.
10. Recognising the importance of controlling the quality of the work's results and its presentation.
11. Submitting works in accordance with both individual and small group demands and personal styles.
12. Transmitting the results of archaeological research and clearly communicating conclusions in oral and written form to both specialised and non-specialised audiences.
13. Using computing tools, both basics (word processor or databases, for example) and specialised software needed in the professional practice of archaeology.
14. Using the specific interpretational and technical vocabulary of the discipline.

Content

Contents

Block 1.- Archaeobotany

- Nature and specificity of archaeobotanical remains
- Formation of the archaeobotanical record.
- Methods and techniques for recovering botanical remains
- The determination of archaeobotanical remains
- Seed and fruit remains: food resources and products, processing and consumption
- Anthracology and dendrology: the management of forest resources
- Palynology: the vegetal landscape

Block 2.- Archaeozoology

- Fauna analysis in the framework of archaeological research projects. Goals, trends and key concepts in archaeozoology. Integrating archaeozoological problems to archaeological research.

- The nature of the paleofaunistic record. Micromammals, fish, molluscs and birds. Other categories of remains: amphibians, reptiles, insects and mites
- The formation of fauna remains: archaeotaphonomy. The incorporation of animal remains to the archaeological sites: agents and conditions. Archaeotaphonomy assessment.
- The recovery of fauna remains: units and conditions. Representativeness of faunal assemblages: the problem of sampling.
- Anatomical and taxonomic classification of fauna remains. The reference collection. The handbooks. Problems with the determination of morphologically close species. Biometry. DNA. Categories and classification units used in archeozoology. Databases and recording methods.
- Determination of the structure of the slaughtered animal populations. The estimation of age: tooth wear and epiphyseal closure assessment. X-rays. Sex determination. Morphology and osteometric criteria.
- Anthropic modifications. Traces linked to processing, distribution and consumption of animal resources. Identification of work processes through the analysis of changes in bone surfaces. Techniques involved in the preparation of food for consumption: identification and characterization based on the analysis of thermal alterations. Analysis of fracture patterns and their relationship with the processing and consumption of animals and animal products.
- The spatial analysis of fauna remains. Bone breakage, refitting and anatomical articulations.
- Quantification and statistical treatment. Sample representativity. Number of remains and minimum number of individuals. Skeletal parts frequencies. Evaluation of potentially supplied biomass.
- The interpretation: management of animal resources. Different trends in Archaeozoology.

Block 3.- Human Osteoarchaeology (anthropology)

- Bone tissues, anatomical standards, human variability and osteological determination.
- Human bones of the axial skeleton
- Human bones of the appendicular skeleton
- Principles of demographic analysis (1): age-at-death estimation.
- Principles of demographic analysis (2): sex estimation.
- Tomb excavation & record: orientation, position, sequencing and funerary taphonomy.
- Human bones in funerary practices research.

Methodology

The course is of a practical nature and it will be taught in the teaching laboratories of the Department of Prehistory.

Basic procedures for the analysis of archaeological remains will be learned by means of case study applications and practical exercises.

Distribution of hours per block:

- Archaeozoology: 21 hours
- Archaeobotany: 21 hours
- Anthropology: 12 hours

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Practical sessions	50	2	3, 2, 4, 7
Type: Supervised			
Exercices based on ICT	15	0.6	3, 1
Type: Autonomous			
Written assignment	80	3.2	3, 1, 6, 8, 11, 10, 12, 14, 13

Assessment

Attendance to practical classes is compulsory; exercises and practical work will be required for each one of the three blocks.

Written tests will also be required for some of the contents of the course.

Re-evaluation:

A second evaluation is foreseen for those students not having passed the first one if the following requirements are met:

- All tests for each one of the three blocks must have been taken.
- All practical sessions must have been attended.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exams	50%	1	0.04	5, 11, 9, 12, 14
Written assignment	50%	4	0.16	3, 2, 1, 4, 7, 6, 8, 11, 10, 12, 14, 13

Bibliography

Bloc 1.- Archaeobotany

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Plants) is well illustrated and provides detailed information. supported by online databases. This series is a joint project of the Groningen Institute of Archaeology (GIA), the Community and Conservation Ecology Group (COCON), both of the University of Groningen (the Netherlands), and the Deutsches Archäologisches Institut (DAI, Berlin, Germany).

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<http://seeds.eldoc.ub.rug.nl/>

<http://http://www.plantatlas.eu>

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<http://http://insidewood.lib.ncsu.edu>

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Bloc 2. Archaeozoology

TEMA 1. Les anàlisis de fauna en el marc dels projectes d'investigació arqueològica:

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TEMA 3. La formació dels conjunts de restes de fauna: l'arqueotafonomia:

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TEMA 7. Traces vinculades al processament, distribució i consum dels recursos animals:

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USEFUL WEBSITES

Virtual comparative specimens:

<http://vzap.iri.isu.edu/ViewPage.aspx?id=230>

<http://hbs.bishopmuseum.org/frc/types.html>

Zooarch e-mail list:

<http://www.jiscmail.ac.uk/lists/ZOOARCH.html>

Zooarchaeological organizations:

Archeozoo - <http://www.archeozoo.org/en>

International Council for Archaeozoology <http://www.alexandriaarchive.org/icaaz/>

Bone Commons (ICAZ) - <http://www.alexandriaarchive.org/bonecommons/>

Sites to buy skeletons and casts:

<http://www.animalskeletons.net/>

<http://www.skullsite.co.uk/lists.htm>

<http://theevolutionstore.com/>

ArchNet: Faunal Resources (Links related to identification of animal remains):

http://archnet.asu.edu/topical/Selected_Topics/Faunal%20&%20Zooarchaeology.php

Bioarchaeological References:

<http://www.utep.edu/leb/baref/biblio.htm>

Computerised Bone Templates (presents an approach to the computerized recording of graphical zooarchaeological data using digital image templates and graphic software packages):

<http://www.archaeographica.com>

ICAZ Animal Palaeopathology Working Group:

<http://www.apwg.supanet.com/>

Zooarchaeology Information and Resources:

<http://www.zooarch.com>

Boc 3.- Anthropology

1. Osteologia humana, antropologia biològica, tafonomia i paleopatologia

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2. Aplicacions bioarqueològiques

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<http://www.innerbody.com/image/skelfov.html>

The University of Texas: osteologia i anatomia primatològica comparada; inclou vistes 3D i moviment

<http://www.eskeletons.org/taxon/human/boneviewer/skull/cranium.html#Anterior>

Exercicis d'osteologia humana

<http://www.free-anatomy-quiz.com/skeletalsystem.html>

Jocs d'osteologia humana *Whack-a-Bone*

<http://www.anatomyarcade.com/games/WAB/WAB.html>

Osteoware, Smithsonian Institution (2011): software lliure per el registre informatitzat de restes humanes en bases de dades (basat en els *Standards* de Buikstra i Ubelaker - inclou manual)

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