



CAVE OF THE ANGEL, SPAIN

Course ID: ARCH 365AU

Session I: July 8 - August 9, 2019

Session II: July 29 - August 29, 2019

FIELD SCHOOL DIRECTOR:

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INTRODUCTION

Angel Cave is a unique, Acheulean era (1,500,000–150,000 years ago) site located in the Aras mountain range in southern Spain (Lucena, Cordoba). Since 2012, the Spanish *Fundación Instituto de Investigación de Prehistoria y Evolución Humana* (FIPEH), founded by Dr. Barroso Ruiz, has coordinated various research initiatives focused on studying Quaternary period humans in Southern Spain. The Cave of the Angel is one of FIPEH's main projects.

Our research goal is to understand the life of Acheulean populations who inhabited the Southern Iberian Peninsula and the environment in which they lived. To this end, FIPEH, in collaboration with other Spanish and international institutions, focuses on the study of technological development, fauna associated with the site, the ecological context, paleoclimate during the Acheulean occupation, and genetics of the human remains found within the chasm.

This site is a karstic complex divided into three main areas.

1. The rock shelter at the mountain's surface has been excavated for the longest period of time. This part of the site shows indication of intense fauna processing with bone remains that show cut marks and fire exposure. A large hearth has also been found here. The stratigraphy shows no interruption in hominin occupation from 350,000 to 121,000 years ago. However, dating of the oldest stratigraphic layer has indicated occupation more than 400,000 years ago. This location contains numerous lithic tools of different typologies, such as handaxes, scrapers, blades, and burins, most of which are made of flint.
2. The cave entrance, located a few meters NE of the rock shelter, has a floor with two small openings connecting to a chasm 100 meters underneath it. This cave has been cleared of large boulders and other blockages but has not yet been excavated.
3. The third structure is a chasm, 100 meters below the cave entrance, reaching deep into the heart of the karstic mountain. The chasm contains a cone of debris 70 m high, composed of ceramic, animal bones, human bones, lithic artifacts, rock, and sand. In 2009, a tunnel was built to allow researchers and visitors to access the location more easily. In this area, two seasons of excavation have revealed more than 600 Neolithic and Chalcolithic human remains. The controlled climate within the chasm -- steady humidity and constant, cool temperature -- has made it possible to isolate preserved DNA from the recovered remains.

Excavations in the chasm have, so far, recovered remains related to post-mortem activities of the Neolithic and Chalcolithic periods, including more than 600 Homo sapiens remains. Participants will enjoy a unique opportunity to understand the environment and lifestyle of the populations who occupied southern Europe hundreds of thousands of years ago in a program that includes field survey, laboratory training, lectures from top experts in European prehistory, and field trips to sites of cultural and archeological importance in the region.

For the 2019 excavation season, two areas will be excavated: the rock shelter and the chasm. The research questions for each area are as follows:

- Rock shelter: Determine the stratigraphic and structural relationship between the structure of combustion (hearth) and the occupation floor.
- Chasm: Determine whether there are remains which might help indicate which other species of hominids, beside Homo sapiens, might have occupied the rock shelter in prehistory.

ACADEMIC CREDIT UNITS & TRANSCRIPTS

Credit Units: Attending students will be awarded 8 semester credit units (equivalent to 12 quarter credit units) through our academic partner, Connecticut College. Connecticut College is a private, highly ranked liberal arts institution with a deep commitment to undergraduate education. Students will receive a letter grade for attending this field school (see grading assessment and matrix). This field school provides a minimum of 160 direct instructional hours. Students are encouraged to discuss the transferability of credit units with faculty and registrars at their home institution prior to attending this field school.

Transcripts: An official copy of transcripts will be mailed to the permanent address listed by students on their online application. One more transcript may be sent to the student home institution at no cost. Additional transcripts may be ordered at any time through the National Student Clearinghouse: <http://bit.ly/2hvvurkl>.

COURSE OBJECTIVES

The course objective is to introduce participants to the field of archaeological science, the Quaternary period in the Iberian Peninsula, and human evolution by providing them with theoretical and practical

training in archaeological methodologies and fieldwork techniques.

The skills targeted in the field school curriculum are divided into two main sections: Fieldwork (excavation and laboratory) and Coursework (lectures and practicum).

- Excavation: Students will dig shovel test pits and excavate 1x1 meter squares in a Cartesian coordinate system. Additionally, students will process sediment in an on-site dry sieve.
- Laboratory: Laboratory processing will be taught in a wing of the same complex of buildings in which students are housed. The participants will learn to clean, identify, classify, and register artifacts in a digital database. Additionally, participants will work on sediment extracted from the site. This includes washing, drying, wet-sieving, and sorting heavy fraction.
- Coursework: Lectures will be taught by researchers and professors from both Spanish and international universities, as well as members of FIPEH. The focus of the lectures is to help students contextualize the work being done at the site in the literature on the Quaternary period of human evolution.
- Practicum: A series of activities will expose students to various professional skills used in the excavation and study of sites from the quaternary period of human evolution and the challenges of excavating in caves.

DISCLAIMER – PLEASE READ CAREFULLY

Our primary concern is with education. Traveling and conducting field research involve risk. Students interested in participating in IFR programs must weigh whether the potential risk is worth the value of education provided. While risk is inherent in everything we do, we do not take risk lightly. The IFR engages in intensive review of each field school location prior to approval. Once a program is accepted, the IFR reviews each program annually to make sure it complies with all our standards and policies, including student safety.

We do our best to follow schedule and activities as outlined in this syllabus. Yet local permitting agencies, political, environmental, personal, or weather conditions may force changes. This syllabus, therefore, is only a general commitment. Students should allow flexibility and adaptability as research work is frequently subject to change.

The site is located in a steep terrain, so it is recommended that participants bring hiking boots with ankle support. Some hiking up- and downhill will be required every day. The excavation will take place close to the cave entrance as well as deep inside a cave, so in a dark and humid environment. The temperature will be relatively low in comparison to the outdoor temperature (about 15°C/50°F). The floor can be rocky and slippery. For these reasons, hiking boots with ankle support, helmets and the use of harnesses are mandatory. The wild fauna of the cave includes spiders and bats. To avoid potential danger, it is mandatory to not disturb the animals that inhabit the cave.

The climate outside the cave will be hot and dry, so it is recommended that participants bring light-colored, breathable clothing as well as a hat. Additionally, sunscreen is also recommended.

If you have any medical concerns, please consult with your doctor. For all other concerns, please consult with the project director.

PREREQUISITES

This field school is designed for undergraduates and graduate students in archaeology, history, art history, biology, geology, and any other field related to archaeology, as well as any other person interested in archaeology.

LEARNING OUTCOMES

Techniques: Survey and excavation in paleolithic sites; Preservation, restoration and conservation of Quaternary archaeological material

Theory: Prehistory of Iberian Peninsula; Paleontology Systematics; Taphonomy; Anthracology; Palynology; Dating methods (C14, OSL, U/Th); Paleoanthropology and Human Evolution; Physical Anthropology; Flint Knapping; Use-wear analysis; Restoration and Preservation; Speleology Basics

GRADING MATRIX

50% of Grade	Regular participation in field work, laboratory work, workshops, and lectures.
30% of Grade	A field notebook that will be submitted and evaluated at the end of the course.
20% of Grade	Attendance, Participation and Behavior: willingness to engage in the activities, lectures, and work, relationship with their classmates, staff and local community, respect for facilities, site and regional cultural heritage.

TRAVEL & MEETING POINT

Hold purchasing your airline ticket until six (6) weeks prior to departure date. Natural disasters, political changes, weather conditions and a range of other factors may require the cancelation of a field school. The IFR typically takes a close look at local conditions 6-7 weeks prior to program beginning and make Go/No Go decisions by then. This time frame still allows the purchase of discounted airline tickets while protecting students from potential loss of airline ticket costs if we decide to cancel a program.

The program operates in two subsequent sessions: July 8- August 9 and July 29-August 29. On arrival and departure dates, FIPEH will provide transportation between the residences and three locations:

- Málaga-Pablo Picasso Airport (AGP)
- Córdoba train/bus station
- Puente Genil train station

Further details will be given to all enrolled students during the pre-departure online orientation.

If you missed your connection or your flight is delayed, please call, text or email the project director immediately. A local emergency cell phone number will be provided to all enrolled students.

VISA REQUIREMENTS

Spain is a party to the Schengen Agreement. U.S. citizens may enter Spain for up to 90 days for tourist or business purposes without a visa. Your passport should be valid for at least three months beyond the period of stay. You may need to provide proof of sufficient funds for the duration of your stay and a return airline ticket. (<http://travel.state.gov/content/passports/english/country.html>).

Citizens of other countries are asked to check the embassy website page at their home country for specific visa requirements.

ACCOMMODATIONS

Accommodations are in shared rooms (4-6 beds) located in Municipal Dormitory (Residencia Municipal) in the town of Lucena. Pillows and sheets are provided. Rooms are equipped with AC. Bathrooms are shared, and each is equipped individual showers. The common areas are cleaned once a week by professional cleaners. Breakfast, lunch and dinner will be provided 7 days a week at the residence. It is based on a Mediterranean diet. There will be special recipes for those who have dietary restrictions such as diabetes, allergies or gluten intolerance and vegetarians.

COURSE SCHEDULE

All IFR field schools begin with safety orientation. This orientation includes proper behavior at the field area, proper clothing, local cultural sensitivities and sensibilities, potential fauna and flora hazards, review of IFR harassment and discrimination policies, and review of the student Code of Conduct.

Monday – Friday (no lecture)	
Time	Activity
7.30	Beginning of the day
8.00 – 8.30	Breakfast
8.45	Depart for Cave of the Angel
9.00 – 14.00	Archaeological Activities / Laboratory Activities (11.00 – 11.30 mid-morning snack)
14:00 – 14:30	Back to Accommodations
15.00 – 16.00	Lunch
16.00 – 17.30	Free time
17:45	Depart for Cave of the Angel
18.00 – 21.00	Archaeological Activities / Laboratory Activities
21:00 – 21:30	Back to Accommodations
22.00 – 23.00	Dinner
23:00	End of the day

Monday – Friday (Lecture)	
Time	Activity
7.30	Beginning of the day
8.00 – 8.30	Breakfast
9.00 – 14.30	Lecture (11.00 – 11.30 mid-morning snack)
15.00 – 16.00	Lunch
16.00 – 17.30	Free time
17:45	Depart for Cave of the Angel
18.00 – 21.00	Archaeological Activities / Laboratory Activities
21:00 – 21:30	Back to Accommodations
22.00 – 23.00	Dinner
23:00	End of the day

Schedule of lectures

Week 1 of Lectures		
Date	Time	Lectures
Jun 29	9.00 – 14.30	Opening + Introduction to Archaeology of the Quaternary
Jun 30	9.00 – 14.30	Archaeological methodology of excavation and laboratory work + Nondestructive methods in archaeological prospecting (Ground-penetrating radar)
Jun 31	9.00 – 14.30	Workshop: Introduction to Speleology
Aug 1	9.00 – 14.30	Paleontology Systematics: Mammal Identification (teeth and cranial/postcranial bones) + Analytical Methods in Taphonomy
Aug 2	9.00 – 14.30	Flint knapping + Use-wear analysis

Week 2 of Lectures		
Date	Time	Lecture

Aug 5	9.00 – 14.30	Dating Methods: C14, OSL, and Uranium–Thorium
Aug 6	9.00 – 14.30	Anthracology (identification of wood charcoal) + Palynology (identification of pollen)
Aug 7	9.00 – 14.30	Physical Anthropology
Aug 8	9.00 – 14.30	Archaeology of the Iberian Peninsula + Methods of Restoration and Conservation in Archaeology
Aug 9	9.00 – 14.30	Workshop: Paleoanthropology and Human Evolution and Identification of Primates and Human Fossils

Weekends: Weekend are dedicated to free time and to field trips (TBD)

EQUIPMENT LIST

Mandatory:

- Hiking boots providing ankle support
- Hat, light-colored
- Breathable clothing for hot weather
- Sunscreen (SPF 50 recommended).
- A large water bottle

Recommended:

- Any medication you need, prescription or otherwise, to last for the duration of the field school
- Sun glasses
- Hiking poles;

For cave excavation:

Helmet, caving suit/coverall, gloves and headlights are provided, but students are welcomed to bring their own equipment.

REQUIRED READINGS

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2. Cecilio Barroso Ruíz, Daniel Botella Ortega, Miguel Caparrós, Anne Marie Moigne, Vincenzo Celiberti, Agnès Testu, Deborah Barsky, Olivier Notter, José Antonio Riquelme Cantal, Manuel Pozo Rodríguez, María Isabel Carretero León, Guadalupe Monge Gómez, Samir Khatib, Thibaud Saos, Sophie Gregoire, Salvador Bailón, José Antonio García Solano, Antonio Luis Cabral Mesa, Abderrezak Djerrab, Ian George Hedley, Salah Abdessadok, Gerard Batalla LLasat, Nicolas Astier, Læticia Bertin, Nicolas Boulbes, Dominique Cauche, Arnaud Filoux, Constance Hanquet, Christelle Milizia, José Moutoussamy, Elena Rossoni, Luis Verdú Bermejo, Henry de Lumley, *The Cueva del Angel (Lucena, Spain): An Acheulean hunters habitat in the South of the Iberian Peninsula*, Quaternary International, Volume 243, Issue 1, 2011, Pages 105-126, ISSN 1040-6182, <https://doi.org/10.1016/j.quaint.2011.02.021>. (22 pages)
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RECOMMENDED READINGS

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