

## DADES GENERALS

## Curs acadèmic

<b>Tipus de curs</b>	Expert Universitari
<b>Nombre de crèdits</b>	16,00 Crèdits ECTS
<b>Matrícula</b>	700 euros (import preu públic)
<b>Requisits d'accés</b>	Students seeking a future in maritime archaeology require a wide knowledge of techniques, tools and methods used in the field. History, Archaeology, Humanities, Art History graduates and public workers related with Cultural Heritage.

<b>Modalitat</b>	Semipresencial
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## Lloc d'impartició

<b>Horari</b>	Del 3 al 21 de juliol de 2023, de dilluns a divendres de 9 a 20:30
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## Direcció

<b>Organitzador</b>	Departament de Prehistòria i Arqueologia
<b>Col·laborador</b>	Centre d'Arqueologia Subaquàtica de Catalunya. CASC. Dirección General de Bellas Artes
<b>Direcció</b>	Agustín Ángel Díez Castillo Contratado/a Doctor/a. Departament de Prehistòria, Arqueologia i Història Antiga. Universitat de València Carlos De Juan Fuertes Doctor en Arqueología. Carlos de Juan Fuertes

## Terminis

<b>Preinscripció al curs</b>	Fins a 31/05/2023
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<b>Data inici</b>	Juliol 2023
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<b>Data fi</b>	Juliol 2023
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## Més informació

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## PROGRAMA

## Methods in underwater archaeology

- Cartography and the different types of underwater surveys.

It includes the theoretical learning of methods and techniques used in the location and of underwater findings, taking into account the environment in which they are found, depth, salinity, turbidity, .... Different types of nautical and terrestrial maps useful in underwater surveying are studied.

- The excavation: from the configuration to the documentation.

It includes the theoretical learning of the methods and techniques used in the excavation of underwater findings, taking into account the kind of environment in which they are found. Emphasis is placed on excavation processes, two and three dimensional graphic documentation, etc.

- From the dig to the lab: conservation and restauration of submerged artefacts.

This module aims to show the use of analytical techniques from chemistry, physics, biology and earth sciences for archaeological and conservation issues in underwater materials. The classes introduce some of the most innovative scientific methods used in underwater archaeology, employing case studies. By studying this course, students will be prepared to read published research, and will be provided with basic knowledge of some analytical techniques that they could later study in detail. Contents referring to different types or ways of building wooden boats, from prehistory to medieval times, are studied including Greek and Roman know how.

- The post excavation processes: studying, publishing and valorising.

This module aims to show the use of analytical techniques from chemistry, physics, biology and earth sciences for archaeological and conservation issues in underwater materials. The classes introduce some of the most innovative scientific methods used in underwater archaeology, employing case studies. By studying this course, students will be prepared to read published research, and will be provided with basic knowledge of some analytical techniques that they could later study in detail.

- Legal protection for Underwater Cultural Heritage.

An introduction to the main characteristics of the underwater heritage is included, basic knowledge about the related laws at all levels: international (UNESCO), Spanish (Ley de Patrimonio Histórico Español, Ley de Costas) o regional (cultural heritage laws in

the spanish autonomous communities).

- Professional development.

The subject of archeology as a profession, public and private management of underwater archeology is addressed, as well as the organization of companies or other figures (e.g. cooperatives) where underwater archaeologist could work.

#### Coastal and maritime archaeology

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- The History of underwater archaeology

The recovery of sunken artifacts was practiced from ancient times, but maritime archaeology as a science was only born mid XXth century in order to protect the underwater cultural heritage. The students will be taught the history of the discipline and its main actors. It will focus on when it was born and why. The case of Spain will be explained in depth as an example. This topic will end with an overview of the future prospects of underwater archaeology.

- The different types of underwater archaeological sites

Throughout this topic the students will learn about the multiplicity of underwater archaeological sites (all different types of shipwrecks, other types of wrecks like plains, submerged structures as harbours or bridges, submerged cities, isolated finds).

- The specificity of sites in deep waters, high lakes, intertidal areas and land

Underwater archaeology can take place in very diverse environments, each one posing different challenges. The ones presented in this block are particularly problematic due to the accessibility to the archaeological remains or the issues inherent to diving, among others. There will also be reminded that maritime archaeologists often work on land too (drained harbours, ship burials...)

- Ancient harbours and coastal geomorphology:

The coastline is an extremely dynamic area affected by the erosion caused by sea, the sedimentary deposits brought by rivers, tectonic movements and volcanic activity. This has impacted coastal structures such as harbours throughout history. Notions on coastal dynamics, the change in the coastline over time and how to study them will be addressed in this block.

- Naval architecture: the basics.

Contents referring to different types or ways of building wooden boats, from prehistory to medieval times, are studied including Greek and Roman know how.

- Trade products and other cargoes

A ship was freighted for three main reasons: travel, trade and war. In this block students will learn about the contents of the shipwrecks studied by underwater archaeology: commercial products such as amphorae, warfare equipment such as canons, and remains that did not subsist but are essential to the knowledge of History, such as slaves.

#### Practicum

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Block 1: Underwater survey. Description: Underwater survey exercises will start with the topographic delimitation of research area, which will be systematically recognized and surveyed by the students. The archaeological goal of these exercises will be to try to locate an area with remains of dolia sherds and to try to give an explanation whether it is a wreck from Roman times, an old port warehouse area (today submerged) or even a drag, from the coast, by torrential river currents.

Block 2: The underwater excavation. Description: includes the design and mounting of excavation logistics, such as water dredges. A sector near the main underwater harbor structure will be excavated and record.

A grid will be made and placed to divide the space by m2. Students will excavate the sector applying the horizontal layer methodology, where the archaeological finds will be positioned and tag numbered. Archaeological record drawings will be made at 1:10 scale and if marine visibility allows, photogrammetric record may be done. Archaeological finds will be removed to the surface, where they will be inventoried. They will be temporary stored, and students will carry on the beginning of the desalination process.

#### Final essay

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### PROFESSORAT

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**María del Carmen Aranegui Gascó**

**Ferran Arasa Gil**

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**Beatriz Belando Garín**

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**Miriam Noto**

Autónoma

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**Guillermo Pascual Berlanga**

Profesor/a. Universidad de Cádiz

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**OBJECTIUS**

Les sortides professionals que té el curs són:

Acquiring knowledge and experience in nautical and underwater archeology opens the professional horizon of graduate students. Thereafter, they could carry out underwater archaeological research, both at sea and in inland waters, by their own or joining already established archaeological companies or research groups. Student will combine the specific knowledge acquired in the field, together with the ability to develop underwater activities.

This type of professional activity, such as being an underwater archaeologist technician within projects, research lines or also within teams and companies that work in cultural resource management, widens the range of professional opportunities for them.

Graduates will be able to opt, under improved conditions, for scholarships and contracts in a competitive regime aimed at increasing the historical knowledge of the relationship of human groups with the sea, in the past.

They may also be hired by the administration, public or private companies to carry out archaeological works such as: Inspections and assessment of sites after accidental finds.

Underwater archaeological mapping.

Salvage underwater archaeological excavations promoted by the administration.

Surveillance of dredging and maritime works.

Carrying out underwater archaeological surveys, related to Environmental Impact Studies.

Carrying out underwater archaeological excavations related to the corrective or compensatory measures indicated in the Environmental Impact Statements.

This seminar aims to introduce students to primary themes and tools in maritime archaeology. It will acquaint participants with remote sensing and mapping, interpreting, recording, and storing data used in maritime archaeological surveys. Students will study the theory pertaining to these topics and will also have opportunities to practice the required underwater skills.

To provide students with the necessary toolkit to face underwater heritage intervention projects, knowing the existing regulatory instruments, as well as current underwater techniques.

To provide students with basic knowledge about the structure and construction of wooden boats of all ages, needed to carry out the study and documentation of shipwrecks.

To, correctly, identify, classify and contextualize the archaeological objects that usually appear associated with the submerged archaeological heritage.

To facilitate the students training skills in an underwater environment. The students, already trained for diving, will develop on an underwater site, recording and surveying tasks.

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**METODOLOGÍA**

**THEORETICAL AND PRACTICAL PRESENTIAL CLASSES:** The development of the teaching program will be complemented with the explanation of examples during the explanation of the topics. During the practical class sessions there will be exercises that will help the students to successfully complete the exams.

**PREPARATION OF THEORETICAL CLASSES:** Reading and monitoring of the general and specific bibliography.

**PREPARATION OF PRACTICAL WORKS:** Application of the knowledge acquired during the theoretical classes to the interpretation of selected archaeological scientific papers.

**REALIZATION OF TEAMWORK:** Preparation in groups and public presentation of a topic chosen from the topics proposed by the teaching staff, which will be established annexes corresponding annexes.

**PROGRAMMED TUTORIES:** These tutorials will be used for monitoring group work and practical work.

**UNSCHEDULED TUTORIES:** Students can attend tutoring at any time to ask questions and receiving feedback about issues that they consider pertinent.

**COMPLEMENTARY ACTIVITIES:** Throughout the course one or more activities will be established so the students can choose

between several options.