UAB
Universitat Autònoma de Barcelona

Digital Cartography

Code: 106867
ECTS Credits: 6

2025/2026

Degree	Type	Year
Archaeology	OB	2

Contact

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

The course does not have any specific requirements, apart from a minimum knowledge of basic computer tools (Windows, Excel, Word) at user level.

Objectives and Contextualisation

The purpose of archaeology is to record and study societies through their material remains. Therefore, cartography, and in general the treatment of georeferenced spatial information, is one of the basic working tools of archaeology, both for the initial tasks of recording and inventory, as well as for the subsequent interpretation, analysis and presentation of results.
In this context, the specific objectives of the course are threefold:

1. to provide the basic knowledge for the understanding and use of cartographic representation, in its fundamental aspects: measurement; positioning; scale representation; object of cartographic representation (variable according to purpose); conception and use of the information object of representation; material support of the information (the cartographic data) and products or documents (maps) derived from presentation of the information. In particular, in the context of archaeology, through the different types (purposes) of maps and scales usually used.

2. To provide the technical knowledge and specific practical skills for the production of cartographic data, by digital means, for the most common uses of cartography in the field of archaeology (survey, situation, inventory, interpretation, territorial or landscape vision). It includes the acquisition of data (in the field, by GPS or total station, or in the office, by digitizing, from images, from other digital or analog cartographic data sources or from various geographically referenced documentationwith geographic references), its manipulation and structuring, and storage in digital formats.

3. Provide the technical knowledge and specific practical skills for the elaboration of presentation maps (documents) for some of the most common uses of cartography in the field of archaeology. It includes the conception of the map (selection, compilation, simplification, adaptation of the information that constitutes its content), the symbolization of the information for its presentation in map form following general and specific principles of visual communication; and the design of the document.

Learning Outcomes

1. CM16 (Competence) Apply space analysis and management tools to the methodological design of basic and applied archaeology work.
2. CM17 (Competence) Identify the construction processes of social spaces (territory, landscape) in the past, recognising the anthropic footprint on natural environments, so they can be integrated into explanations of the past.
3. KM26 (Knowledge) Recognise the contributions of architecture, geography, geology and paleoenvironmental disciplines, as well as developments in GIS resources and computer databases for the comprehensive development of archaeology.
4. KM27 (Knowledge) Archaeologically identify the expression in space of historical and social processes integrating a spatial perspective of analysis on various scales, from the regional level to that within the settlement.
5. SM26 (Skill) Analyse societies of the past from an understanding of the pattern of dispersion and spatial location of their archaeological remains.
6. SM27 (Skill) Demonstrate the patrimonial and scientific potential of archaeological sites, at the settlement level and at the regional or cultural landscape level.
7. SM28 (Skill) Apply cartographic, LIDAR, GIS and geobase resources for the representation and management of archaeological information, as well as the dissemination of heritage.
8. SM29 (Skill) Use geobases and GIS resources in archaeology fieldwork, as well as in the study of archaeological materials and contexts.

Content

Basic block: Understanding and use of cartographic representation (30%)

1. Object of cartography.
2. Geodesy and geographic reference systems.
3. Cartographic projections and coordinate systems.

Operational block I: Production of digital cartographic data (40 %)

1. Digital representation of cartographic information.
2. Production methods, cartographic information sources.
3. Digital image processing.
4. Digitalization, structuring and transformation of digital cartographic data.

Operational block II: Elaboration of presentation maps (30%)

1. Cartographic compilation.
2. Cartographic symbolization.
3. Cartographic design.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Basic concepts	15	0.6	
Labwork	25	1	
Type: Supervised			

Field work data acquisition	10	0.4
Lab work	10	0.4
Type: Autonomous		
Self-learning and sel-testing	28	1.12

The theoretical knowledge is introduced and reinforced through the synthetic exposition of the contents in class by the teacher and developed through the autonomous work of the student consisting of the study of the specific materials of the subject (notes of the topics), available in the Virtual Campus of the UAB, and general materials (bibliography and references to digital documents and web resources).
The operational (technical) and instrumental knowledge (handling of computer programs) is developed through a set of guided practices carried out in class time or autonomously.
For each subject, 1-2 practices of assimilation of the theoretical knowledge or learning of the operative knowledge will be carried out in class time, at the rate of one practice per week (approximately). In addition, throughout the course the student will carry out, with the support of the teacher, 5 practices of application of knowledge and techniques. The practices carried out in class will not have to be handed in and will not be evaluated. The practices carried out in an autonomous way will have to be handed in and will be graded.

The development of data collection practices in the field involves two compulsory field trips, for the use of GPS receivers and total stations respectively, to be carried out in the morning (in principle in the morning without scheduled teaching in the course) approximately in the month of April (according to the calendar). The exact date of the field trips will be announced on the first day of class when the course calendar is presented.

All course materials (notes, practices, questionnaires, documents or data for the practices) are available in the Virtual Campus of the UAB.
Note: 15 minutes of a class will be reserved, within the calendar established by the center / degree, for the completion by the students of the evaluation surveys of the teacher's performance and evaluation of the subject / module.

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.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Final test	50	2	0.08	
Self-grading: practices and tests	50	60	2.4	CM16, CM17, KM26, KM27, SM26, SM27, SM28, SM29

Continuous evaluation:

Continuous evaluation of learning is based on the results of the practices (maps, data, calculation results, etc.) carried out autonomously (5 evaluable practices throughout the course). The internships must be handed in by the deadline set for each internship. The internships not handed in within the deadline can be handed in at the end of the term a few days before the ordinary exam, but in this case they will be marked with a maximum grade of 5.

The internships are individual and compulsory. The average grade of the evaluable internships together with the average grade of the theory questionnaires gives rise to the course grade. Internships are not reevaluated.

The theoretical parts of the course will also be evaluated continuously during the course by means of questionnaires at the end of each topic or group of topics. These questionnaires will be carried out in the classroom, except for justified reasons. In case the average grade of the questionnaires is higher than 5, it will not be necessary to take the theoretical part of the final exam. Exceptionally, a grade of 4 in the average of questionnaires (or in the theoretical exam if applicable), allows averaging with the practical part or the practical exam, but with the understanding that the overall average must be approved.

The course grade must be validated by means of a compulsory exam at the end of the course, on the last day of class (first week of June), which will consist of a theoretical part (35% of the exam grade) and a practical part (65% of the exam grade).

In order to pass the course, the following requirements must be met:

to be able to attend the compulsory exam it will be necessary to deliver a minimum of 80% of the evaluable practices.
In order to pass the course it will be necessary to pass the final exam or the re-evaluation exam.
Once the exam has been passed, the grade for the course will be the higher of the two grades obtained: course grade or exam grade, provided that the difference between the two grades is less than 2 points. In case the difference exceeds 2 points, the final grade will be the exam grade.

Reevaluation:

Once the ordinary evaluation is finished, the student will have the possibility to take a re-evaluation exam within the following two weeks, on the date scheduled by the Faculty. The conditions to be able to attend the re-evaluation exam will be the same as to be able to attend the final exam (deliver 80% of the evaluable practices).

Other considerations:

NOT EVALUATED: In the case that no delivery is made, no laboratory session is attended and no exam is taken, the corresponding grade will be a "not evaluable". Otherwise, the "no-shows" will count as a 0 for the calculation of the weighted average which, at most, will be 4.5. That is to say, participation in any evaluated activity implies that the "no-shows" in other activities will be taken into account as zeros.

HONORARY REGISTRATIONS: Honorary registrations will be granted to those who obtain a grade higher than or equal to 9.5 in each part, up to 5% of the enrolled students according to descending order of final grade.

REPEATERS: There is no differentiated treatment for students who repeat the course.

COPYING AND PLAGIARISM: Copying refers to evidence that the work or examination has been done in part entirely without intellectual contribution of the author. This definition also includes proven attempts to copy in examination papers and violations of the rules that ensure their intellectual authorship. Plagiarism refers to works and texts of other authors that are passed off as one's own. They are a crime against intellectual property. To avoid plagiarism, cite the sources you use when writing a paper report. According to UAB regulations, both copies and plagiarism or any attempt to alter the result of the evaluation, your own or someone else's -by copying, for example- imply a grade of 0 for the corresponding part (theory, practical exercises) and, in this case, a failure of the subject, without this limiting the right to take action against those who have participated, both academically and criminally. See UAB documentation on "plagiarism" at: http://wuster.uab.es/web_argumenta_obert/unit_20/sot_2_01.html

This course does not include a single evaluation system.

Bibliography

Cartography handbook

- Barber, P. (2006) *El gran libro de los mapas* (edició en castellà). Barcelona: Paidós.
- Dent, B.; Torguson, J. and Hodler, T. (2008) *Cartography: Thematic Map Design*. 6th edition. Boston: WCB / McGrawHill.
- Joly, F. (1988) *La cartografía* (edició en castellà). Vilassar de Mar (Barcelona): OikosTau.
- Nunes, J. (2012). *Diccionari terminològic de sistemes d'informació geogràfica*. Barcelona: Enciclopèdia Catalana i Institut Cartogràfic i Geològic de Catalunya, 551 pp.
- Consultable a http://www.termcat.cat/ca/Diccionaris_En_Linia/197
- Rabella, J.M., Panareda, J.M., Ramazzini, G. (2011). *Diccionari terminològic de cartografia*. Barcelona: Enciclopèdia Catalana i Institut Cartogràfic i Geològic de Catalunya, 417 pp.
- Consultable a http://www.termcat.cat/ca/Diccionaris_En_Linia/197
- Robinson, A.H.; Morrison, J.L.; Muehrcke, P.C.; Kimerling, A.J. and Guptill, S.C. (1995) *Elements of Cartography*. 6th edition. New York: John Wiley and Sons.
- Robinson, A.H.; Morrison, J.L.; Muehrcke, P.C. and Kimerling, A.J. (1987) *Elementos de cartografía* (edició en castellà de la 5ª edició en anglès). Barcelona: Ediciones Omega.

Cartography for Archaeology handbook

- Chevallier, R. (2000) *Lecture du temps dans l'espace: topographie archéologique et historique*. Paris: Picard.
- Howard, P. (2006) *Archaeological surveying and mapping: recording and depicting the landscape*. New York: Routledge.

GIS for Archaeology handbooks

- Conolly, J. and Lake, M. (2006). *Geographical Information Systems in Archaeology*. Cambridge: Cambridge University Press.
- Conolly, J. and Lake, M. (2010) *Sistemas de información geográfica aplicados a la arqueología*. (edició en castellà). Barcelona: Edicions Bellaterra.
- Wheatley, D. and Gillings, M. (2002) *Spatial technology and archaeology*. London: Taylor & Francis.

Software

Mainly ArcGIS software is used, but other GIS software such as QGIS and MiraMon can be used. It is also necessary to use other generic office software (spreadsheet such as MS Excel and word processing such as MS Word).

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this link. To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PLAB) Practical laboratories	11	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	12	Catalan	first semester	morning-mixed

(TE) Theory	1	Catalan	first semester	morning-mixed