

Degree programme	Type	Course
Digital Humanities and Heritage	OP	1

Contact lecturer

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Teaching staff

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Group languages

You can consult this information at the [end](#) of the document.

Prerequisites

No prior knowledge of computer science or programming is required, except for familiarity with computer equipment at an advanced user level. The required level of mathematics is that of compulsory secondary education.

Some familiarity with humanities and/or cultural topics is recommended.

English proficiency sufficient to read texts is required

Objectives

The course introduces students to information management and Data Science, discussing the theory, techniques, and technology of relational databases and the most common structured query languages. It presents reference ontologies in the cultural domain (CIDOC-CRM) and their use in the indexing and cataloguing of cultural data. The application of these information systems in museums and archives is also discussed.

The course also introduces students to the use of Geographic Information Systems, statistical analysis, and data mining using machine learning techniques.

Learning outcomes

- CA13 (Analyse the limits and drawbacks of specific information management system designs.) Analyse the limits and drawbacks of specific information management system designs.
- CA14 (Explain the operation of digital information management systems that provide concrete solutions to problems arising from public use and open access.) Explain the operation of digital information management systems that provide concrete solutions to problems arising from public use and open access.
- CA15 (Research procedures for the management and processing of cultural and humanistic information with a gender perspective.) Research procedures for the management and processing of cultural and humanistic information with a gender perspective.
- KA17 (Identify the most appropriate digital technologies for the indexing and cataloguing of humanistic and cultural information.) Identify the most appropriate digital technologies for the indexing and cataloguing of humanistic and cultural information.
- KA18 (Identify the operating principles and the most efficient statistical and/or machine learning (artificial intelligence) techniques for the processing of cultural and humanistic data.) Identify the operating principles and the most efficient statistical and/or machine learning (artificial intelligence) techniques for the processing of cultural and humanistic data.
- SA19 (Apply digital text editing tools for semantic markup.) Apply digital text editing tools for semantic markup.
- SA20 (Apply culture-specific ontologies, approved by UNESCO and other international organisations in the design of cultural information databases and management systems.) Apply culture-specific ontologies, approved by UNESCO and other international organisations in the design of cultural information databases and management systems.
- SA21 (Design systems for the computerised management of documents, and their indexing, cataloguing and consultation.) Design systems for the computerised management of documents, and their indexing, cataloguing and consultation.
- SA22 (Use statistical techniques, machine learning and data mining for data processing in the cultural and humanistic field.) Use statistical techniques, machine learning and data mining for data processing in the cultural and humanistic field.

Contents

Introduction to databases and the relational model

Cultural data exchange. Metadata: Dublin Core, EUROPEANA (EDM), CIDOC-CRM, and others

Practical work with archaeological databases

Practical work with textual databases

Practical work with image databases

Geographic Information Systems.

Data analysis and statistics.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Attendance at practical sessions with computer software led by the professor	18	0.72	CA14, CA15, KA17, KA18, SA19, SA20, SA21, SA22
Classroom and Computer Lab practical work	34	1.36	CA13, CA14, CA15, KA17, KA18, SA19, SA20, SA21, SA22
Personal study. Bibliographical consultation. Additional practical work	60	2.4	CA13, CA14, CA15, KA17, KA18, SA19, SA20, SA21, SA22
Attendance at lectures led by the professor	18	0.72	CA14, CA15, KA17, KA18

Attendance at theoretical classes led by the professor.

Attendance at seminar sessions and practicals with computers and specific software led by the professor.

Classes are held in a specialized computer lab.

Comprehensive reading of texts.

The student is expected to make an independent effort to consult specialized bibliography. Part of the documentation is in English.

Independent practical computer exercises.

In-class debates, moderated by the teaching staff, on the most significant topics.

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

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Presentation of text commentaries upon references suggested by the professor	30%	5	0.2	CA13, CA14, CA15, KA17, KA18, SA21, SA22
Presentation of a critical essay using Generative Artificial Intelligence	30%	5	0.2	CA13, CA15, SA21
Evaluation of practical work asked by the professor	40%	10	0.4	CA13, CA14, CA15, KA17, KA18, SA19, SA20, SA21, SA22

The evaluation methodology for this master's course is based on the active and reflective participation of students. Their analytical skills will be assessed through the evaluation of practical exercises with computer software asked by the professor. Furthermore, comments on articles and bibliographic references will be also asked by the teaching staff. At the end of the course, students will prepare critical summaries of different technologies, expressing and arguing criteria for good practice.

Another key component of the assessment will be a critical assignment involving the use of Generative Artificial Intelligence tools, applied to one of the topics discussed during the course. This assignment must include a reflection on the limitations and potential of these technologies within the field of Digital Humanities. The specific details regarding format, criteria, and deadlines will be explained and discussed in class by the professor.

Single assessment is not allowed.

At the time each assessment activity is carried out, the instructor will inform students (via Moodle) of the procedure and the date for reviewing grades.

Recovery procedure: only the final assignment (critical summary) is eligible for reassessment. This decision will be made on a case-by-case basis following a personal interview between the student and the professor.

The submission date for reassessment will also be determined on a case-by-case basis and by mutual agreement between the professor and the student.

The student will receive a grade of "Not assessable" if they fail to submit any of the asked exercises.

If a student commits any irregularity that may significantly alter the grade of an assessment activity, that activity will be graded with a 0, regardless of any disciplinary proceedings that may be initiated. If multiple irregularities occur in the assessment activities of the same course, the final grade will be 0.

This course recommends the use of Artificial Intelligence (AI) technologies as an integral part of the development of assignments, provided that the final result reflects a significant contribution from the student in terms of analysis and personal reflection. The student must: (i) identify which parts were generated using AI; (ii) specify the tools used; and (iii) include a critical reflection on how these tools influenced the process and the final outcome of the activity.

A lack of transparency in the use of AI in this graded activity will be considered academic dishonesty and will result in a grade of 0 with no possibility of recovery, or more serious sanctions in severe cases.

Bibliography

Detailed references will be presented thorough UAB Virtual Campus-MOOC.

Main general references:

Bruseker, G., Carboni, N., & Guillem, A. (2017). Cultural heritage data management: the role of formal ontology and CIDOC CRM. *Heritage and archaeology in the digital age: acquisition, curation, and dissemination of spatial cultural heritage data*, 93-131.

Burrough, P. A., McDonnell, R. A., & Lloyd, C. D. (2015). *Principles of geographical information systems*. Oxford university press.

Carlson, D. L. (2017). *Quantitative methods in archaeology using R*. Cambridge University Press.

Drennan, R. D. (2010). *Statistics for archaeologists*. New York: Springer.

Dritsou, V. (2024). *Introduction to Cultural Heritage Data Modelling-with a focus on Europeana Data Model*. DARIAH-Campus.

Foster, E., & Godbole, S. (2022). *Database systems: a pragmatic approach*. Auerbach Publications.

Hyvönen, E. (2012). *Publishing and using cultural heritage linked data on the semantic web (Vol. 3)*. Morgan & Claypool Publishers.

Isaac, A., Fernie, K., Bachi, V., Tsoupra, E., Medici, M., Alkemade, H., ... & Heslinga, L. (2024). Making the Europeana Data Model a Better Fit for Documentation of 3D Objects. In *3D Research Challenges in Cultural Heritage V: Paradata, Metadata and Data in Digitisation* (pp. 63-74). Cham: Springer Nature Switzerland.

Kennedy, M. (2009). Introducing geographic information systems with ARCGIS: a workbook approach to learning GIS. John Wiley & Sons. Oldman, D., & Labs, C. R. M. (2014). The CIDOC Conceptual Reference Model (CIDOC-CRM): primer. CIDOC-CRM official web site.

O'Neill, B., & Stapleton, L. (2022). Digital cultural heritage standards: from silo to semantic web. *AI & society*, 37(3), 891-903.

Otto, B., Ten Hompe, M., & Wrobel, S. (2022). Designing data spaces: The ecosystem approach to competitive advantage (p. 580). Springer Nature. Ranjgar, B., Sadeghi-Niaraki, A., Shakeri, M., Rahimi, F., & Choi, S. M. (2024). Cultural heritage information retrieval: past, present and future trends. *IEEE Access*.

Rockoff, L. (2021). The language of SQL. Addison-Wesley Professional.

Ruthven, I., & Chowdhury, G. G. (Eds.). (2015). Cultural heritage information: Access and management (Vol. 1). Facet publishing.

Silva, A. L., & Terra, A. L. (2024). Cultural heritage on the semantic web: The europeana data model. *IFLA journal*, 50(1), 93-107.

Yu, J. X., Chang, L., & Qin, L. (2022). Keyword search in databases. Springer Nature.

Software

MySQL. <https://www.mysql.com/>

MongoDB. <https://www.mongodb.com/>

QGIS. <https://qgis.org/>

PAST 5. <https://www.nhm.uio.no/english/research/resources/past/>

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(SEMm) Seminars (master)	1	Catalan/Spanish	second semester	afternoon