



SCHOOL OF PHILOSOPHY
JOINT POSTGRADUATE PROGRAMME
DIGITAL HUMANITIES
MSc in Digital Humanities

STUDY GUIDE
2026 – 2027



NKUA · Athena Research Center · University of Cyprus

ACADEMIC YEAR 2026–2027

Athens 2026

PROGRAMME INFORMATION

Secretariat / Administrative support	Department of History and Archaeology, NKUA
Address	School of Philosophy, Zografou University Campus, Athens 157 84, Greece
Telephone	+30 210 7277939
Email	dh@uoa.gr
Website	https://dh.arch.uoa.gr/

Programme administration

Programme Studies Committee (PSC)

Role	Full name	Institution
Programme Director – Chair of the PSC	Prof. Konstantinos Kopanias	Department of History and Archaeology, NKUA
PSC member	Prof. Sofia Aneziri	Department of History and Archaeology, NKUA
PSC member	Prof. Christos Papatheodorou	Department of History and Philosophy of Science, NKUA
PSC member	Prof. Amphiloehios Papathomas	Department of Philology, NKUA
PSC member	Prof. Maria Tzamtzi	Department of Digital Industry Technologies, NKUA
PSC member	Prof. Apostolos Sarris	Department of History and Archaeology, University of Cyprus
PSC member	Research Director Despoina Tsiafaki	Athena Research Center

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1. Programme identity and regulatory framework

The Joint Postgraduate Programme in Digital Humanities (MSc in Digital Humanities) is organised by the Departments of History and Archaeology, Philology, History and Philosophy of Science, and Digital Industry Technologies of the National and Kapodistrian University of Athens (NKUA), in collaboration with the Department of History and Archaeology of the University of Cyprus and the Athena Research Center. Administrative support is provided by the NKUA Department of History and Archaeology.

The Programme was established by NKUA Senate Decision No. 1010/31.1.2022 (Government Gazette, Series B, 917/2022). Its original Operating Regulations were approved by Decision No. 1011/31.1.2022 (Government Gazette, Series B, 873/2022). The current structure of the Programme and the programme-specific Regulations are established by NKUA Senate Decision No. 75/26.2.2024 (Government Gazette, Series B, 1560/08.03.2024).

Key regulatory framework

- Law 4957/2022, as amended and in force, particularly the provisions governing the organisation and operation of postgraduate programmes.
- Government Gazette, Series B, 1560/08.03.2024: programme-specific Regulations and amendment of the Joint Postgraduate Programme.
- Government Gazette, Series B, 4173/08.07.2026: NKUA Internal Regulations, particularly Articles 83–104 on postgraduate programmes.
- Joint Ministerial Decision 18137/Z1/16.02.2023 (Government Gazette, Series B, 1079): requirements for organising postgraduate programmes using distance education methods.

2. Scope, Objectives and Specialisations

Subject area, aims and specialisations

The Programme provides advanced postgraduate education and promotes research into the application of digital technologies in the humanities. It aims to provide advanced training and specialisation for graduates of the humanities, sciences and technological disciplines, to develop interdisciplinary approaches, and to strengthen research capabilities in the Humanities.

Specialisations

- Data Analytics for Humanities
- 3D Technologies
- Augmented Textual Studies
- Geographic Information Systems

Successful completion of the Programme leads to the award of a Master's degree in Digital Humanities (MSc in Digital Humanities), specifying the specialisation. A total of 90 ECTS credits is required for the degree.

3. Admission of postgraduate students

Eligible applicants and number of places

The Programme accepts graduates in the Humanities and Social Sciences, Informatics and Information Science/Technologies, Digital Industry Technologies, Schools of Science and Engineering, and related disciplines of Greek universities or recognised equivalent institutions abroad.

The maximum number of students admitted is fifteen (15) per specialisation and sixty (60) in total. If fewer than five (5) applicants are admitted to a specialisation, the PSC may decide not to offer that specialisation in the academic year concerned.

Required supporting documents

- Application explaining the reasons for choosing the Programme and listing the preferred specialisation(s) in order of priority.
- Detailed curriculum vitae.
- Copy of the degree certificate or certificate of completion of studies, together with the undergraduate academic transcript.
- Copies of any additional academic qualifications.
- Publications, evidence of scholarships/awards, and evidence of professional or research activity, where applicable.
- Up to two reference letters.
- Certificate of English language proficiency at a minimum level of B2.
- For international applicants wishing to study in Greek, a certificate of Greek language proficiency or sufficient knowledge of Greek established by the Selection Committee.
- Photocopy of an identity document and a recent photograph.
- For qualifications awarded abroad, the academic recognition/verification procedure prescribed by the legislation in force applies.

Assessment criteria

Criterion	Maximum score
Degree grade	40
Relevant undergraduate courses / undergraduate thesis or dissertation	10
Additional academic qualifications	20
Relevant professional work	10
Knowledge of foreign languages	10
Publications / conferences / scholarships / distinctions	10
Total	100

Details of the scoring system, dates, submission procedure and required evidence are specified in the annual call for applications.

4. Programme structure, duration and modes of study

Standard duration of study

The standard duration of the Programme is three (3) academic semesters: two semesters of taught courses and one semester devoted to the Master's dissertation. A total of ninety (90) ECTS credits is required for the degree. Full-time students are expected to complete 30 ECTS credits per semester. In accordance with the NKUA Internal Regulations, the number of ECTS credits awarded in any semester may not exceed 30..

Extension of study

An extension may be granted following a reasoned application and approval by the PSC. For full-time students, the maximum period for completion is six (6) academic semesters. For part-time students, the maximum period for completion, including the available extension, is eight (8) academic semesters.

Part-time study

Part-time status is granted following a reasoned application by the student and approval by the PSC. The following students are eligible to apply:

- students who provide evidence that they work at least twenty (20) hours per week;
- students with disabilities and special educational needs;
- students who are also athletes and meet the specific requirements of the legislation in force.

The duration of part-time study may not exceed twice the standard duration of study. Applications must be accompanied by the supporting evidence appropriate to each case.

Suspension of study

Students who have not exceeded the maximum period of study may, following a reasoned application to the PSC, suspend their studies for up to two (2) consecutive semesters. Suspension is granted for serious, documented reasons, such as military service, illness, the postnatal period or absence abroad. Student status is suspended during this period, and participation in educational activities is not permitted. Semesters of suspension do not count towards the maximum period of study.

5. Teaching, attendance and academic support

The Programme begins in the winter semester of each academic year. Each semester includes at least thirteen (13) weeks of teaching and three (3) weeks of examinations. Courses may include lectures, tutorials and laboratory exercises, seminars, assignments and other educational activities.

Teaching is delivered primarily through synchronous distance education, in accordance with the Programme Regulations and the applicable legislation. Certain courses or educational activities may also be offered in person, with the option of simultaneous remote participation. In addition, on-site tutorials and supplementary teaching sessions will be offered to support students' understanding of the subject matter and practical training. Remote participation in these activities will also be available wherever feasible. Course materials, including notes, presentations, exercises and other supporting resources, are made available through the NKUA online platform.

The language of instruction and of the Master's dissertation is Greek and/or English.

Attendance and absences

Attendance at courses, laboratories and related activities is compulsory. Absences may not exceed 20% of the teaching hours for each course. Students exceeding this limit must attend the course again in the following academic year. If a student's absences exceed 60% across all courses, removal from the Programme may be considered. The matter is examined by the PSC.

Academic adviser

In the first semester, the PSC appoints an academic adviser for each student to provide support on matters relating to study, course selection and academic direction. When work on the Master's dissertation begins, the dissertation supervisor assumes this role.

6. Courses, electives and credits (ECTS)

During the first two semesters, students take the compulsory courses of their specialisation and elective courses so that the full-time programme amounts to 30 ECTS credits per semester. Any course offered by the Programme may be selected as an elective. The indicative curricula for each specialisation list recommended electives on the basis of their relevance to that specialisation.

At the beginning of each semester, students register with the Programme Secretariat for the courses they intend to take. The PSC may decide not to offer a particular elective if fewer than five (5) students register for it. If a specialisation is not offered because too few students have been admitted, the PSC may decide that its compulsory courses will not be offered as electives to students in the other specialisations.

7. Examinations and assessment

Students may be assessed through written or oral examinations, interim progress tests, written assignments, laboratory exercises or a combination of these methods. The assessment method is determined by the instructor of each course, and the integrity of the examination process must be ensured.

Courses are graded on a scale of 1–10. For the Master's dissertation, the programme-specific Regulations expressly require a minimum passing grade of 7/10.

Examination results are announced by the instructor and sent to the Programme Secretariat no later than four (4) weeks after the examination. A grade may be corrected only in the event of an obvious clerical or calculation error, following a written statement by the instructor and a decision by the PSC. Examination scripts are retained under the instructor's responsibility for two (2) years, unless relevant criminal, disciplinary or administrative proceedings are pending.

Students who fail a course are entitled to retake the examination twice more (three attempts in total), during the September examination period or the examination period corresponding to the semester in which the course is taught. A successfully completed laboratory component or practical exercise that is assessed separately does not need to be repeated.

8. Master's dissertation

The Master's dissertation is undertaken in the third semester and carries thirty (30) ECTS credits. A dissertation is assigned after the student has attended all courses in the curriculum and taken the examinations in them. It is an individual, original piece of research and must be written in accordance with the Programme's dissertation guidelines.

The application for assignment of a dissertation is submitted by the student before the end of the second semester and includes a proposed title, a proposed supervisor, the language in which the dissertation will be written, and an abstract of the proposed work. The PSC appoints the supervisor and the three-member examination committee. The dissertation is written in Greek or English; the language is specified when the topic is approved.

The dissertation is defended before a three-member examination committee and graded on a scale of 1–10. It is approved if the final grade is 7 or higher. If it is not approved, the student is permitted only one further examination or, alternatively, may apply to change the topic and/or the three-member examination committee, provided that the total period of study is not exceeded. If the student fails again, a certificate of course attendance with an academic transcript is issued, and enrolment in the Programme ends automatically and permanently. A change of topic or of members of the three-member examination committee is permitted only once, following an application and a decision by the PSC.

9. Rights, obligations, mobility and internships

Postgraduate students are entitled to the same rights and benefits as undergraduate students until the end of their studies, including any approved extension, with the exception of free textbooks. An active institutional account is required to access NKUA electronic services. At the end of each semester, postgraduate students evaluate courses and instructors.

International mobility

After the first semester, students may participate in international mobility programmes, such as ERASMUS+ and CIVIS, following an application and approval by the PSC. Under the programme-specific Regulations, up to 30 ECTS credits may be recognised.

Internships

The Programme offers optional internships in public or private organisations under the supervision of, or in collaboration with, a faculty member or researcher. An internship carries six (6) ECTS credits, which do not count towards the ninety (90) ECTS credits of the standard curriculum. Internships may also be undertaken through mobility programmes, such as Erasmus+, in accordance with the applicable legislation.

10. Tuition fees, exemptions, scholarships and awards

Tuition fees

Total tuition fees are €4,000: €1,500 for each of the two taught semesters and €1,000 for the dissertation semester. Payment deadlines are determined by a decision of the PSC.

Exemption from tuition fees

Students who meet the financial or social criteria and academic excellence requirements of the legislation in force are exempt from tuition fees. Exemptions may not exceed 30% of the students admitted in each academic year. Applications are submitted after the selection process has been completed. Students receiving a scholarship from another source and citizens of non-EU countries are not eligible for an exemption under the framework in force.

Scholarships and awards

Under Article 13 of the Programme Regulations (Government Gazette, Series B, 1560/08.03.2024), students may receive scholarships and awards as follows:

- Merit scholarships (Article 13.1a): up to four (4) scholarships are awarded, with at least one for each specialisation offered, to students who achieve high grades in the first-semester courses. The scholarship provides an exemption from tuition fees for the following taught semester.
- Teaching assistance scholarships (Article 13.1b): the PSC may award up to four (4) scholarships in return for assisting with teaching in undergraduate programmes. The same basic requirements and criteria as for merit scholarships apply.
- Excellence awards (Article 13.2): following a decision of the PSC, the Programme may give an award to the top student in each cohort and specialisation offered, provided that the student has successfully completed the first- and second-semester courses during the regular examination periods and achieved an average grade of at least 8/10. These awards carry no financial benefit.

11. Academic calendar 2026–2027

	Winter semester	Spring semester
Start of classes	05/10/2026	22/02/2027
Christmas / Easter holidays	23/12/2026 – 07/01/2027	26/04/2027 – 09/05/2027
End of classes	15/01/2027	04/06/2027
Examinations	18/01/2027 – 05/02/2027	07/06/2027 – 25/06/2027
September resit examinations	—	01/09/2027 – 24/09/2027

Public holidays / days without teaching

- 28/10/2026
- 17/11/2026
- 30/01/2027
- 21/02/2027
- 15/03/2027
- 25/03/2027
- 01/05/2027
- 21/06/2027

12. Curriculum by specialisation

How to read the tables

Courses marked C are compulsory. Courses marked E are recommended electives. Any course offered by the Programme may be selected as an elective, subject to PSC decisions on the provision of courses and specialisations and the maximum of 30 ECTS credits per semester.

Specialisation 1: Data Analytics for Humanities

Semester 1

Type	Course	Hours	ECTS
C	Introduction to Digital Humanities	3	6
C	Data Analytics	3	6
C	Image Processing/Analysis	3	6
C	Databases in Historical and Archaeological Research	3	6
E	Recommended electives — select 1		
E	Semantic Web	3	6
E	Human-Computer Interaction	3	6
E	Quantitative Methods for Textual Data	3	6
E	Mathematics for Humanities	3	6
	Semester total	15	30

Semester 2

Type	Course	Hours	ECTS
C	Data Analysis for Humanities with Python	3	6
C	Data Base Systems	3	6
C	Special Topics in Machine Learning	3	6
E	Recommended electives — select 2		
E	Text Mining	3	6
E	Computational Stylistics	3	6
E	Linguistic Annotation	3	6
E	Data Visualization	3	6
E	VR/AR Technologies	3	6
	Semester total	15	30

Semester 3

Course	ECTS
Master's dissertation	30

Specialisation 2: 3D Technologies

Semester 1

Type	Course	Hours	ECTS
C	Introduction to Digital Humanities	3	6
C	Human-Computer Interaction	3	6
C	Image Processing/Analysis	3	6
C	Introduction to 3D Technologies	3	6
E	Recommended electives — select 1		

Type	Course	Hours	ECTS
E	Data Analytics	3	6
E	Python Programming for Humanities	3	6
E	Introduction to GIS	3	6
	Semester total	15	30

Semester 2

Type	Course	Hours	ECTS
C	VR/AR Technologies	3	6
C	Advanced 3D	3	6
E	Recommended electives — select 3		
E	Data Base Systems	3	6
E	Special Topics in 3D	3	6
E	Data Analysis for Humanities with Python	3	6
E	Data Visualization	3	6
E	Advanced GIS (I): Geospatial Analysis and Modelling in GIS	3	6
	Semester total	15	30

Semester 3

Course	ECTS
Master's dissertation	30

Specialisation 3: Augmented Textual Studies

Semester 1

Type	Course	Hours	ECTS
C	Mathematics for Humanities	3	6
C	Python Programming for Humanities	3	6
C	Quantitative Methods for Textual Data	3	6
C	Introduction to AI and Machine Learning	3	6
E	Recommended electives — select 1		
E	Stemmatics and Textual Criticism	3	6
E	Human-Computer Interaction	3	6
E	Introduction to GIS	3	6
	Semester total	15	30

Semester 2

Type	Course	Hours	ECTS
C	Linguistic Annotation	3	6
C	Text Mining	3	6
C	Databases and Tools in Ancient Greek Philology	3	6
E	Recommended electives — select 2		
E	Data Base Systems	3	6
E	Computational Stylistics	3	6
E	Data Analysis for Humanities with Python	3	6
E	Data Visualization	3	6
E	VR/AR Technologies	3	6
E	Special Topics in Text Encoding	3	6

Type	Course	Hours	ECTS
	Semester total	15	30

Semester 3

Course	ECTS
Master's dissertation	30

Specialisation 4: Geographic Information Systems

Semester 1

Type	Course	Hours	ECTS
C	Introduction to Digital Humanities	3	6
C	Introduction to GIS	3	6
C	Spatial Analysis and Quantitative Geography	3	6
E	Recommended electives — select 2		
E	Image Processing/Analysis	3	6
E	Data Analytics	3	6
E	Human-Computer Interaction	3	6
E	Introduction to 3D Technologies	3	6
E	Mathematics for Humanities	3	6
	Semester total	15	30

Semester 2

Type	Course	Hours	ECTS
C	Advanced GIS (I): Geospatial Analysis and Modelling in GIS	3	6
C	Advanced GIS (II): Satellite Remote Sensing and Image Analysis	3	6
E	Recommended electives — select 3		
E	Advanced 3D	3	6
E	Special Topics in 3D	3	6
E	Data Analysis for Humanities with Python	3	6
E	VR/AR Technologies	3	6
	Semester total	15	30

Semester 3

Course	ECTS
Master's dissertation	30

13. Course descriptions

Course descriptions

The following descriptions and learning outcomes reflect the current content of the Programme Regulations. The precise assessment method for each course is determined by the instructor in accordance with Article 8 of the Regulations and communicated to students at the beginning of the semester through the online classroom.

1. Introduction to Digital Humanities

Introduction to Digital Humanities

Topics	Introduction to Digital Humanities. Main aims and historical development. • Definitions and issues in Humanities research. • The contribution and use of computer science and digital technologies in Humanities research. • Concepts, terminology and an overview of data analytics, 3D and GIS, and their relationship to the Humanities. • Challenges and problems in the field of Digital Humanities.
Learning outcomes	Understand what Digital Humanities is, its role and its significance. • Have an overview of the digital technologies applied in Humanities studies. • Understand the basic concepts and research workflows of Digital Humanities. • Be familiar with the terminology and concepts relating to the digital technologies covered in the curriculum.

2. Mathematics for Humanities

Mathematics for Humanities

Topics	Set theory and elements of mathematical logic, covering their basic concepts (union, intersection, symmetric difference, etc.). Propositional and predicate calculus, inference, and simple applications in the creation of language games and the comparison of phrases/texts. • Calculus (functions), covering the basic concepts of functions (graphs, continuity, derivatives, integrals, etc.), with relevant exercises and examples. • Linear algebra (vectors, matrices, linear spaces), with examples of spatial representation and simple applications of vectors and matrices to represent text collections, compare texts, and extract terms/stop words. • Probability and statistics, covering basic concepts (random variables, conditional probability, discrete and continuous distributions, mean, variance, likelihood functions and the Bayesian approach) and simple applications in describing texts/text corpora. • Simple Python scripts for implementing computational models of mathematical concepts.
Learning outcomes	Understand and use basic mathematical concepts and tools as a foundation for research in Digital Humanities.

3. Python Programming for Humanities

Python Programming for Humanities

Topics	Introduction to programming languages. • Learning the Python programming language and using it for text processing. • Variables, strings, data input, control flow, lists, functions, tuples, sequences, files, output formatting and graphs.
Learning outcomes	Understand the existing programming language paradigms. • Use Python to solve a problem.

4. Quantitative Methods for Textual Data

Quantitative Methods for Textual Data

Topics	Basic concepts of descriptive and inferential statistics. • Statistical testing of research hypotheses. • Multivariate statistical analyses applied to linguistic data: logistic regression, discriminant analysis, principal component analysis and others. • Introduction to the R programming language and its use in the quantitative analysis of linguistic data.
Learning outcomes	Understand the basic concepts of descriptive and inferential statistics. • Apply experimental methods to the analysis of linguistic data. • Use multivariate analytical methods with linguistic data. • Use the R programming language for the quantitative analysis of linguistic data.

5. Data Analytics

Data Analytics

Topics	Data sources. Categories of data (statistical, structured, unstructured, big data, etc.). Collection, preprocessing and management of data in different formats, including CSV, XML and JSON. Data representation using the vector space model; text transformation. Management of structured data (tables, vectors, databases, accessibility, data sharing, data governance, and elements of ethics and personal data protection). Data analysis: relevance and similarity, elements of statistical analysis, and data quality. Data presentation, visualisation and use. Practical use of data from the end user's perspective. Applications of data collection, processing, presentation and analysis in the Humanities. Examples include document and object databases and big data.
Learning outcomes	Understand the concepts of data and data analysis in the Humanities. Represent and structure data. Select suitable models for analysing data. Identify patterns in data and draw useful conclusions from their processing. Manage large volumes of data. Use effective methods for putting data to practical use.

6. Data Analysis for Humanities with Python

Data Analysis for Humanities with Python

Topics	Elements of Python programming. Python programming in the Humanities. Data analysis applications using Python: Thematic analysis of texts. Linguistic analysis of texts. Stylistic analysis of texts. Image analysis algorithms. Analysis of geographical data.
Learning outcomes	Develop Python-based applications for analysing textual, image and geographical data drawn from datasets created by Humanities researchers.

7. Databases in Historical and Archaeological Research

Databases in Historical and Archaeological Research

Topics	Archives, sources, data and metadata: concepts and definitions. Standards for documenting cultural data (e.g. CIDOC CRM). Digital sources and libraries for historical and archaeological research (e.g. the Hellenic Parliament Library, ELIA, Anemi and Gallica). Thematic digital projects and audiovisual archives, and their use in historical and archaeological research (e.g. the ERT Digital Archive, ASKI and the Academy of Athens). Digital tools for organising research and recording information (e.g. bibliographic databases/Zotero and documentation databases/Heurist). History, archaeology and the internet: the dissemination of historical knowledge, myths, stereotypes and the digital public sphere (social media). Databases and repositories of the history and archaeology laboratories at NKUA and the Athena Research Center as case studies. National and European research data repositories and European research infrastructures (RIs) for the Humanities (e.g. DARIAH).
Learning outcomes	Know the main digital sources and tools for History and Archaeology. Understand the principal connections between databases and repositories and historical and archaeological research. Use national and European infrastructures and repositories in research.

8. Linguistic Annotation

Linguistic Annotation

Topics	Elements of palaeography. • Descriptive logic for manuscript texts. • Taxonomies and organisation of manuscript information. • Transcription-oriented logic. • Levels of annotation and interlinking of transcribed information. • Basic principles of Lachmann's method, stemmatics and textual criticism. Annotation of the transcription, morphology, syntax and semantics of manuscript texts, both scholarly and literary. • Introduction to XML, DTD and XML Schema. • TEI XML and EpiDoc. • Annotation of manuscript information. • Annotation of typographical information.
Learning outcomes	Transcribe and compare manuscripts. Typeset critical editions of texts. Organise and work with text corpora. Describe and prepare a text for annotation. Encode text using existing standards and types of encoding (morphological, syntactic and semantic). Annotate according to specific types of documents.

9. Image Processing/Analysis

Image Processing/Analysis

Topics	The image digitisation process. Digital image capture devices. Image transformations. Image registration. Image segmentation. Image enhancement. Image coding, compression and transmission techniques. Image analysis, feature extraction and image classification. Image restoration. Applications of image processing and analysis in the Humanities: optical character recognition (OCR) in printed and handwritten texts, object recognition through image analysis, and reconstruction of images of objects.
Learning outcomes	Understand the basic concepts of digital images. • Understand, apply and use image processing and analysis tools for character and object recognition.

10. Introduction to AI and Machine Learning

Introduction to AI and Machine Learning

Topics	Knowledge representation methods (propositional logic, first-order logic, semantic networks, etc.). Methods for drawing inferences from knowledge bases. Formulating machine learning problems as optimisation problems. Aims and applications of machine learning. Machine learning algorithms for natural language processing. Multi-criteria optimisation approaches (common optimisation) and methods for addressing overfitting. Overview of the main supervised learning methods, including regression and classification models. Unsupervised learning models, clustering algorithms, matrix factorisation and latent semantic indexing. Deep learning neural network methodologies and architectures. Examples and applications in the Humanities.
Learning outcomes	Understand the basic methods of knowledge representation and inference. Formulate machine learning problems as optimisation problems and be familiar with basic multi-criteria optimisation approaches for machine learning. Implement basic machine learning algorithms in Python for text processing and analysis.

11. Special Topics in Machine Learning

Special Topics in Machine Learning

Topics	Deep learning and natural language processing (NLP): training different types and architectures of neural networks. Language models and word vector representations. Recurrent neural networks (recursive neural networks). Long-term memory models. Convolutional neural networks and models incorporating attention mechanisms. Applications of machine learning in image analysis and text annotation.
Learning outcomes	Apply and use deep learning tools based on neural networks for natural language processing, image analysis and text annotation problems. Understand different types of neural networks and their potential applications in deep learning architectures.

12. Text Mining

Text Mining

Topics	Main techniques for mining and analysing textual data, with the aim of automatic information retrieval by computer. Extraction of useful knowledge, focusing on statistical approaches using supervised or unsupervised methods that can generally be applied to arbitrary textual data in any natural language.
Learning outcomes	Understand text mining methods that use machine learning techniques. - Be familiar with text clustering and classification techniques. - Use the relevant Python and R libraries for applications involving the mining and analysis of textual data.

13. Databases and Tools in Ancient Greek Philology

Databases and Tools in Ancient Greek Philology

Topics	Introduction to databases for Ancient Greek Philology (TLG, L'Année philologique, Trismegistos, LDAB, CEDOPAL, APh, Arachne, BP3, papyri.info, DDbDP, APIS, HGV, Digital LOEB Classical Library, etc.). Comparison with databases in neighbouring disciplines (e.g. Epigraphische Datenbank, Packhum and Sylloge Nummorum Graecorum). Scholarly use of databases for Ancient Greek Philology. Consolidating the use of EpiDoc beyond inscriptions: databases for Ancient Greek Philology and Papyrology. Familiarisation with SoSOL through its implementation in the Papyrological Editor. Use of Leiden+ in databases of Ancient Greek literature. Electronic journals in Ancient Greek Philology and related disciplines, with instruction in electronic publication in XML through the examples of Pylon and the Papyrological Publication Platform (P3). Extracting data from Ancient Greek Philology databases, using DDbDP as an example, beyond the publicly accessible interface. Entering data into Ancient Greek Philology and Papyrology databases, using DDbDP and the Papyrological Editor in Leiden+ as examples.
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Learning outcomes	Have knowledge of all databases for Ancient Greek Philology and related disciplines. • Have gained practical experience and greater familiarity with EpiDoc, SoSOL and Leiden+. • Extract data from databases by conducting searches beyond the publicly accessible interface. • Enter data into Ancient Greek Philology databases in collaboration with those responsible for them, having gained practical experience with papyri.info. • Work actively with electronic journals that publish in XML, with the aim of facilitating data transfer between scholarly electronic journals and specialised philological data repositories.
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14. Data Base Systems

Data Base Systems

Topics	Introduction to database management systems. Types of databases: relational, semi-structured and graph-based. • Relational databases: conceptual modelling (E-R model); the relational model; designing the database schema; and query languages (SQL). • Information retrieval systems. • Digital libraries. • Data integration.
Learning outcomes	Understand the types of databases and their differences. • Design a relational database, enter data into it, formulate queries and perform related tasks. • Work competently with the basic concepts of information retrieval systems.

15. Human-Computer Interaction

Human-Computer Interaction

Topics	Human-computer interaction and the design of interactive systems. • Modelling the human as a user of a computing system. Cognitive models, perception and representation, attention and memory, and the representation and organisation of knowledge. • Mental models, user mental models, user-group models and interaction models. • Interactive technology, interaction styles, and methods and rules for designing interactive systems. • Usability. • Evaluation of interactive systems. • Collaborative technology and technology for people with disabilities. Haptic interaction. • Interaction on the World Wide Web. • Interactivity in ubiquitous computing environments.
Learning outcomes	Design and evaluate interactive systems.

16. Data Visualization

Data Visualization

Topics	Analysis, modelling and visualisation of data and big data, with the aim of communicating them effectively and making them understandable to the intended audience. • Characteristics of the human brain and visual perception. • Visualisation methods (e.g. line, bar, pie and area charts and graphs; scatter, bubble, polar and funnel plots; treemaps) for visually representing different categories of data. • Interactive visualisation techniques. • Visual mapping (dataflow, pivot tables, etc.), with changes of view (Animate Shift of Focus, Overview and Detail, Semantic Zoom, Magic Lens, etc.). • Communication issues and the creation of data stories that convey a message or information effectively. • Evaluation of interactive visualisations.
Learning outcomes	Use tools to analyse real-life datasets. • Create interactive visualisations.

17. Introduction to GIS

Introduction to GIS

Topics	Basic principles of Geographic Information Systems (GIS) in Archaeology and History. Types of geographical information (vector and raster), hierarchy and symbology. Attribute tables and types of geographical information. Basic concepts of geodesy, coordinate systems and transformations. Map projections and spatial data structures. Digitisation of spatial datasets. Image georeferencing. Spatial interpolation. Map composition.
Learning outcomes	Use a geographic information system for applications in Digital Humanities. Create map compositions combining historical and archaeological data with other geographical data. Understand the different projection systems that are useful for GPS surveying and georeferencing maps in a GIS environment.

18. Advanced GIS (I): Geospatial Analysis and Modelling in GIS

Advanced GIS (I): Geospatial Analysis and Modelling in GIS

Topics	Creation of a digital terrain model. Processing a digital terrain model and its derivatives. Geospatial analysis. Creation of raster maps. Spatial and attribute queries. Exploratory data analysis and geostatistical methods. Visibility analysis. Least-cost analysis. Geomorphological analysis. Classification and thematic mapping. Creation of density maps. Thiessen analysis. Predictive models and risk assessment.
Learning outcomes	Manage different, heterogeneous types of geospatial information; perform algebraic operations on raster maps; conduct spatial analyses; and create different models for predicting archaeological sites or assessing risks for the management and protection of archaeological resources.

19. Advanced GIS (II): Satellite Remote Sensing and Image Analysis

Advanced GIS (II): Satellite Remote Sensing and Image Analysis

Topics	Image interpretation. Analysis of sensors and satellite systems. Geometric and radiometric corrections. Radiometric enhancement. Spatial filtering. False-colour composites. Spectral signatures. Vegetation indices. Classification analysis. Confusion and accuracy matrices. Principal component analysis (PCA). Change detection. Anomaly detection. Time-series analysis. Interferometry.
Learning outcomes	Combine and apply different processing techniques, including classification; extract spectral signatures; analyse time series of satellite images; detect changes in a satellite image; and calculate vegetation indices through integration with other existing geospatial data and web services.

20. Introduction to 3D Technologies

Introduction to 3D Technologies

Topics	Introduction to new 3D modelling technologies and their applications in the Humanities. Basic elements of 3D modelling. Elements of differential geometry and shape analysis. Digital representation of shapes and 3D data structures. Components of a geometric modelling system. Introduction to software used to create 3D models (Blender, Unity, etc.). Introductory elements of 3D digitisation. Introductory elements of 3D printing. Applications in the Humanities: educational, analytical and expressive advantages of 3D representation; digital dissemination of cultural assets.
Learning outcomes	Understand 3D representation technologies and the advantages of applying them in the Humanities. Be familiar with elements of 3D modelling, digitisation and printing. Know the software used to create 3D models and its areas of application in the Humanities.

21. Advanced 3D

Advanced 3D

Topics	Elements of computer vision. 3D digitisation technologies: 3D scanners and depth capture systems. Photogrammetry and its applications. Principles of digital photography. 3D geometric representation through automated and semi-automated terrestrial and aerial collection of photogrammetric data. Approaches using GPS and GIS. Photogrammetry software. Advanced applications in the Humanities: 3D digital replicas of finds from archaeological excavations, as well as monuments and remains from different historical periods. 3D models in research on antiquity and history. Digital replicas of exhibits and composite museum exhibitions. Development of 3D digital museums and exhibitions.
Learning outcomes	Be familiar with introductory elements of computer vision, 3D digitisation technologies and photogrammetry software. Develop a deeper understanding of the applications of these technologies in different fields of the Humanities.

22. Special Topics in 3D

Special Topics in 3D

Topics	3D data analysis and processing. Digital 3D reconstruction/restoration of objects and monuments using documentary sources and digital 3D replicas of fragmentarily preserved evidence. Reality modelling. Digital 3D landscapes: educational tools and educational games for Humanities studies. Reconstruction of a past landscape. 3D printing: printing replicas for use in education, research and display. Additive reconstruction of finds and monuments.
Learning outcomes	Understand elements of 3D data analysis and processing and develop a deeper understanding of their application in digital 3D reconstruction/restoration. Become familiar with reality modelling and its application in creating digital 3D landscapes. Develop a deeper understanding of the use of 3D printing in the Humanities, focusing on printing replicas and additive reconstruction.

23. VR/AR Technologies

VR/AR Technologies

Topics	Modern techniques for presenting exhibits and collections (digital storytelling, holograms, etc.). • VR/AR technologies for creative and artistic expression. • Copyright management and security issues.
Learning outcomes	Develop virtual exhibitions of cultural content using virtual and augmented reality tools.
Assessment	The assessment method and the percentage weighting of its individual components (examination, assignment, laboratory exercise, seminar or a combination of these) are determined by the instructor in accordance with Article 8 of the Regulations and announced at the beginning of the semester through eClass.

24. Spatial Analysis and Quantitative Geography

Spatial Analysis and Quantitative Geography

Topics	Critical examination and analysis of spatial data. Modelling spatial interpolation trends and point distributions. Count-data regression models and cluster analysis. Point-pattern analysis and hotspot detection. Geographically weighted regression (GWR). Applied statistics for space-time clustering.
Learning outcomes	Use data science and machine learning algorithms, tools and data structures to analyse spatial data and understand the causes and effects of spatial phenomena. Use programming languages such as R or Python to retrieve, process, visualise and model geographical data. Apply concepts from cartographic and geographical theory to map and model geographical big data. Conduct independent research on a geographical topic using the data science and GIS methods taught in the course.

25. Semantic Web

Semantic Web

Topics	Metadata. • Semantic Web and ontologies. • Vocabularies and thesauri. • Specific ontologies. • Data transformation. • Linked Data, Wikidata and related resources. • Use of the above in text analysis.
Learning outcomes	Understand the Semantic Web technology stack (URIs, XML, RDS/S, OWL, SPARQL, Linked Data). • Design an ontology and describe data using it (Protégé, SKOS, triplestores). • Transform existing data into RDF data.

26. Stemmatics and Textual Criticism

Stemmatics and Textual Criticism

Topics	Textus receptus, Lachmann's method and the structured examination of witnesses. Texts preserved in a single manuscript. Texts preserved in more than one manuscript. Elements of codicology relating to script and text. Dating, authorship and provenance. Stemmatic theory. Taxonomies of errors. Textual editing. Specialised terminology. Comparison of printed and manuscript text production.
Learning outcomes	Understand the fundamental principles of textual transmission, reconstruction and editing. • Construct a manuscript stemma. • Distinguish between historical and contemporary techniques of textual criticism.

27. Computational Stylistics

Computational Stylistics

Topics	Computational analysis of textual style using natural language processing techniques. • Automatic authorship identification and author profiling. • Ethical issues raised by these technologies and issues concerning authors' rights to anonymity.
Learning outcomes	Describe the main types of stylometric problems. • Identify the appropriate linguistic features for solving specific authorship problems. • Use appropriate machine learning methods to solve specific computational stylistics problems. • Evaluate the ethical considerations involved in using the above methodology.

Assessment	The assessment method and the percentage weighting of its individual components (examination, assignment, laboratory exercise, seminar or a combination of these) are determined by the instructor in accordance with Article 8 of the Regulations and announced at the beginning of the semester through eClass.
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28. Special Topics in Text Encoding

Special Topics in Text Encoding

Topics	Main scripts of Antiquity, the Middle Ages and the Renaissance (Capitalis quadrata, Monumentalis, Uncialis, Rustica capitalis, Insularis maiuscula/minuscula, Visigothica minuscula, Carolingia minuscula, Protogothica, Gothica textualis, quadrata, rotunda, Humanistica). • Writing materials and techniques. • The process preceding the production of a manuscript text. • The layering of manuscript information. • Representation of textual layers in space and time. • Relating script to scribal hands. • Palimpsests.
Learning outcomes	Transcribe a manuscript text. Distinguish the layers of manuscript information. Propose a reconstruction of a text. Understand the concept of an individual hand in relation to generalised styles of script.

14. Student services and useful links

Programme website: <https://dh.arch.uoa.gr/>

NKUA eClass: <https://eclass.uoa.gr/>

The online classroom is used for teaching materials, announcements and communication for each course. Access is through the NKUA institutional account.

Electronic services / MyUni: <https://my-uni.uoa.gr/>

Academic ID: <https://academicid.minedu.gov.gr/>

Pergamos – Institutional Repository: <https://pergamos.lib.uoa.gr/>

NKUA Library and Information Centre: <https://www.lib.uoa.gr/>

Equal Access Unit: <https://access.uoa.gr/>

Career Office: <https://www.career.uoa.gr/>