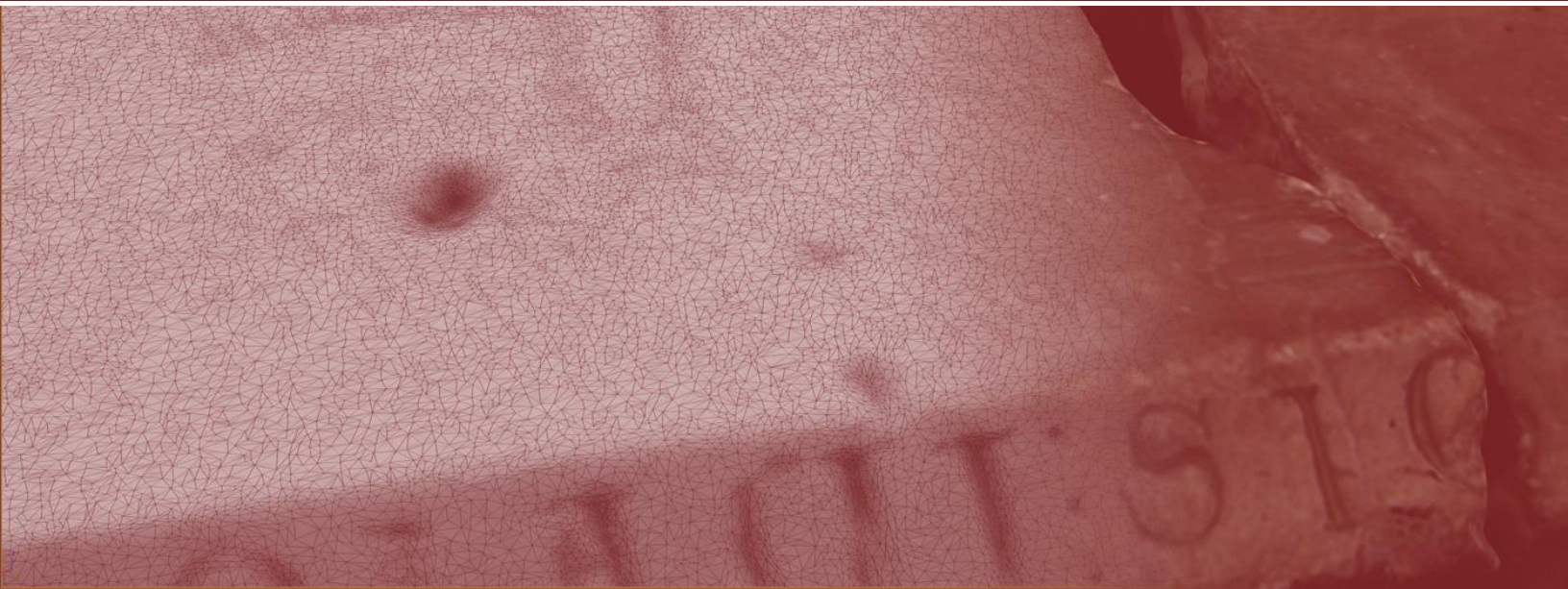


**ΟΙΚΟΝΟΜΙΚΟ
ΠΑΝΕΠΙΣΤΗΜΙΟ
ΑΘΗΝΩΝ**



**ATHENS UNIVERSITY
OF ECONOMICS
AND BUSINESS**

**SCHOOL OF INFORMATION SCIENCES AND TECHNOLOGY
DEPARTMENT OF INFORMATICS**



**MSc PROGRAM IN
DIGITAL METHODS FOR THE HUMANITIES**

STUDIES GUIDE

ATHENS, MAR 2024



MSc IN DIGITAL METHODS FOR THE HUMANITIES

Contact Details

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Aim of the Program

The MSc in Digital Methods for the Humanities aims to provide university graduates specialized postgraduate level knowledge in developing and applying digital methods in the humanities. It aims to promote knowledge, develop interdisciplinary approaches and research and prepare students for taking part in the productive and research advancements in the area of "Digital Humanities".

Degree Title

Master of Science in Digital Methods for the Humanities

Applicants' Profile

The Program is mostly addressed to holders of a bachelor's degree in humanities, social and political sciences, law, as well as information sciences, who take a strong interest in the application of the methods and technologies of informatics in the field of the humanities, and in the changes in work practices that these entail.

Intended Learning Outcomes

After completion of their studies, graduates should:

- Understand and implement digital methods in the fields of humanities and culture.
- Know how to create a digital environment of memory and knowledge.
- Understand the role of the digitalization in the transformation of writing, humanities research, communication and the knowledge economy.
- Be able to undertake professional roles in research, production, documentation, digital curation, organization and management of information resources with extensive use of digital media and techniques, as well as project management, in the fields of humanities and cultural heritage.

Admission

Each year, one or more rounds of applications for admission of postgraduate students are announced, from April to the end of August. The required supporting documents are, as an indication, the following:

1. Application
2. Recent Photograph
3. Copy of Bachelor Degree (for graduates). Student currently finish their degree must submit a declaration form stating that if they get accepted in the program its under the condition that they will finish their postgraduate studies by the following September.
4. Graduates of foreign universities must submit a certificate of recognition from the Hellenic National Academic Recognition and Information Center (NARIC)
5. Copy of grades from all years of study.
6. Two letters of recommendation
7. Curriculum Vitae mentioning any published scientific papers and work experience.
8. Short essay of interest in which they should mention why they are interested in the program.
9. Proof of good knowledge of English (at least level C1)

Candidates must submit their application online at the secretary of Postgraduate and Doctorate program.

The selection criteria of the candidates are defined in the announcement and include, indicatively: degree, grade in undergraduate courses (especially those related to the courses of the program), scientific works, any work experience, type of research and / or professional experience, knowledge of English, knowledge of another foreign language, personal interview, letters of recommendation from faculty members and / or employers.

The process of choosing students is the following:

1. Those candidates who meet the formal and/or minimum requirements are invited for an interview with at least two (2) members of the Candidate Evaluation Committee.
2. Internal examinations are performed, if this is deemed necessary.
3. The Committee makes the final selection, taking into account all available data and compiles a list of successful candidates and runners-up in order of evaluation score.
4. Every candidate who is admitted to the program is invited within a reasonable time to secure one's place in the program by pre-registering and submitting an advance payment of tuition fees.
5. After the end of the pre-registration period, it is possible to accept runners-up in order of evaluation score.

Registration

The registration of the admitted postgraduate students every year takes place at the beginning of October. Under exceptional circumstances, it is possible to register within one month from the expiration of the deadline after a request of the interested student. The entrant, before registering, is informed of the Regulations of the program and declares in writing that he accepts it.

Graduation requirements

Students are required to successfully attend a number of courses for a total of 60 ECTS credits and deliver a diploma thesis of 15 ECTS.

Attendance is mandatory. In case of unjustified absence from a course exceeding 1/3 of the total attendance hours, the student is considered to have failed in this course and needs to attend again in the next available teaching period.

Courses

| | Course Title | ECTS | TEACHING PERIOD |
|--------------------------|--|------|-----------------|
| Mandatory Courses | | | |
| Y1 | Programming in Python | 6 | A |
| Y2 | Information and knowledge representation and organization | 6 | A |
| Y3 | Management, curation and publication of digital assets | 6 | A |
| Y4 | Data management | 6 | B |
| Y5 | Applications of Digital methods in the Humanities | 6 | B |
| ELECTIVE COURSES | | | |
| E1 | Natural Language Processing | 6 | B |
| E2 | Digitization technologies, techniques and applications | 6 | B |
| E3 | Interactive design and multimedia | 6 | C |
| E4 | Electronic lexicography | 3 | C |
| E5 | Design Thinking and Innovation | 6 | C |
| E6 | Geographic Information Systems and Spatial Analysis in History and Archaeology | 6 | C |
| E7 | Special Topics in Digital Methods for the Humanities 1: Digital Technologies in papyri and manuscripts | 3 | C |
| E8 | Special Topics in Digital Methods for the Humanities 2 | 3 | C |
| E9 | Legal Issues in Information and Digital Media Management | 3 | C |
| E10 | Basic Statistics | 6 | B |

Examination and evaluation rules

1. Evaluation is done by the instructors by all convenient means, such as written and oral exams, written assignments and presentations.
2. Participation in the exams on the dates determined in the exam schedule is mandatory. Unjustified absence entails failure in the exam.
3. The grading scale ranges from zero (0) to ten (10), with whole or half unit grades. Passing grades are greater than or equal to five (5).
4. A student who fails course exams and therefore is unable to complete the program, can request an examination by a three-member committee of Department faculty members with relevant specialization, in which the instructor of the course may also participate.
5. No more than two (2) failures in course exams per semester are allowed. This maximum allowed number of failures includes those courses from the exams of which the student was unjustifiably absent. Failure in three (3) courses in one semester implies deregistration of the student from the program.
6. Makeup exams can be taken in September for up to four (4) courses in total. If, after the makeup exams, a student fails in only one (1) course, then the grade of this course may be offset by the grade of the diploma thesis.
7. For the award of the diploma, a passing grade is required in all courses and in the diploma thesis, subject to the above par. 6. If this condition is not met within the stipulated deadline, the student is entitled to an attendance certificate for the courses successfully attended and withdraws from the program.
8. In any case of student withdrawal from the program, no paid tuition fees can be refunded.

Master's diploma thesis

1. Each student submits an application, indicating the supervisor, who must be an instructor of the program, the title and a summary of the proposed diploma thesis. The Coordinating Committee of the program appoints the thesis supervisor. If a) the student does not submit an application in time, b) the proposed Supervisor does not accept the thesis assignment, or c) the supervisor is unavailable, the committee appoints a supervisor, who either accepts to supervise the student with the proposed thesis subject or proceeds to propose a new thesis topic.
2. A thesis application is submitted at the beginning of June and the thesis is officially assigned by the end of June. The thesis must be submitted by the end of October of the academic year following the completion of the courses. In exceptional cases, if a student justifiably does not complete the thesis within the above time frame, he/she may request an extension of up to two months. The Committee of the program decides on the extension and its duration, taking into account the reasons provided by the student and the recommendation of the thesis supervisor.
3. The thesis can be written in Greek or English and must include a summary in both languages.
4. The thesis is examined by a three-member committee consisting of the supervisor and two other instructors of the program. At least one member of the committee must be a faculty member of the Department of Informatics. The examination is held in November. In case of

failure in the thesis examination, the student can resubmit the thesis one more time, no sooner than one (1) month and no later than three (3) months after the first examination. In case of second failure the student withdraws from the Program.

5. The thesis is submitted in digital form to the Library of AUEB and is published in the institutional repository.

Academic Calendar

| | |
|--------------------|-------------------------|
| Teaching Period A | 09/10/2023 - 15/12/2023 |
| Period A Exams | 18/12/2023- 22/12/2023 |
| Christmas Holidays | 25/12/2023 - 07/01/2024 |
| Teaching Period B | 08/01/2024 - 15/03/2024 |
| Period B Exams | 18/03/2024 - 22/03/2024 |
| Teaching Period C | 26/03/2024 - 14/06/2024 |
| Easter Holidays | 29/04/2024 - 12/05/2024 |
| Period C Exams | 17/06/2024 - 21/06/2024 |

Holidays

| | |
|--|------------|
| October 28 th - the anniversary of NO | 28/10/2022 |
| Anniversary Of Polytechnio | 17/11/2023 |
| Trion Ierarhon | 30/01/2024 |
| Ash Monday | 18/03/2024 |
| Anniversary 25 th March | 25/03/2024 |
| First of May | 01/05/2024 |
| Holy Spirit | 24/06/2024 |

Course Descriptions

Y1. Programming in Python

Instructors: Antonis Dimakis, Spilios Spiliopoulos

Mandatory, Teaching Period A, ECTS: 6

Description and Content

This course serves as an introduction to the basic concepts of computer programming for students with no prior programming experience. The subjects covered include: computers and computations, programs and programming, basic file management from the command line, functions, basic Python data types, expressions. Control structures and iteration, input / output, files, simple searching and sorting algorithms, algorithm design and complexity. Composite data types, strings, Python lists and dictionaries. Classes, objects and object-oriented programming.

Prerequisites

None

Target Learning Outcomes

Upon successful completion of the course, students will be able to:

- Understand fundamental concepts in computer programming, such as those of algorithm, data representation and program execution.
- Develop simple programs according to the principles of structured programming.
- Be familiar with basic searching, sorting and text manipulation algorithms.
- Understand the basic programming paradigms, such as functional, procedural and object-oriented programming.
- Know the key features of the Python programming language.

Recommended reading

- Υπολογισμοί και Προγραμματισμός με την Python, John V. Guttag, Εκδόσεις Κλειδάριθμος, 2015.
- Εισαγωγή στον Προγραμματισμό με αρωγό τη γλώσσα Python, Γεώργιος Μανής, Ελληνικά Ακαδημαϊκά Ηλεκτρονικά Συγγράμματα & Βοηθήματα – Αποθετήριο «Κάλλιπος», <https://repository.kallipos.gr/handle/11419/2745>
- Εισαγωγή στον Προγραμματισμό με την Python, Νικόλαος Α. Αγγελιδάκης, ηλεκτρονικό σύγγραμμα διαθέσιμο στο <http://aggelid.mysch.gr/pythonbook/>
- Composing Programs, John DeNero, ηλεκτρονικό σύγγραμμα στα αγγλικά [διαθέσιμο στο <http://composingprograms.com/>]

Language of instruction: Greek

Y2. Information and Knowledge Representation and Organization

Instructor: Panos Constantopoulos

Mandatory, Teaching Period A, ECTS: 6,

Description and Content

Modelling and knowledge organization principles. Semantic models, RDF/S and OWL languages. Knowledge organization systems (controlled vocabularies, taxonomies, term thesauri), SKOS standard. Metadata and metadata standards. Ontologies, CIDOC CRM standard and derivatives. Digital documentation of cultural material.

Prerequisites

None

Target Learning Outcomes

After successfully completing the course, students will be able to:

- Build conceptual models.
- Conduct domain analysis for developing information resources.
- Develop and use model patterns, knowledge organization systems and ontologies.

Recommended reading

- Κωνσταντόπουλος, Π., *Εννοιολογικά μοντέλα και οργάνωση πληροφοριών, Σημειώσεις, Οικονομικό Πανεπιστήμιο Αθηνών, 2020.*
- Slides, texts and bibliography assigned through the Web page of the course.

Teaching methods

One three-hour lecture per week, modelling and analysis assignments.

Assessment and grading methods

The course grade, B, is derived from the final exam grade, T, the average grade of assignments, E, and participation, Σ, as follows: $B = 0,5T + 0,4E + 0,1Σ$.

Language of instruction: Greek

Y3. Management, curation and publication of digital assets

Instructor: Christos Papatheodorou

Mandatory, Teaching Period A, ECTS: 6,

Description and Content

Typology of the information sources, Repositories and Digital Libraries – Software platforms
Repositories and Digital Libraries – Management issues, Digital Curation: Life cycle, Metadata:
Introduction, Dublin Core, MODS, EAD, Digital Resources identification, the DOI standard, Digital
Preservation principles, Text Encoding, Digital Resources Publishing – Open Science and Open
Access principles.

Target Learning Outcomes

After successfully completing the course, students will be able to:

- Acquire knowledge on Digital Resources Life Cycle and Digital Curation
- Practice on Digital Library Management platforms (Omeka)
- Acquire knowledge on Text Encoding

Prerequisites:

None.

Recommended reading

- Michael Lesk, Understanding Digital Libraries, Second Edition, Elsevier
- Slides, texts and bibliography assigned through the Web page of the course.

Teaching methods

One three-hour lecture per week, modelling and analysis assignments.

Assessment and grading methods

The course grade, B, is derived from the average grade of assignments, E, and participation, Σ,
as follows: $B = 0,9E + 0,1Σ$.

Language of instruction: Greek

Y4. Data Management

Instructors: Ioannis Kotidis, Chrysostomos Kapetis

Mandatory, Teaching Period B, ECTS: 6

Description and Content

Entity-Relationship model and relational databases. The SQL language (DDL and DML commands). Using SQL SERVER to create, query and manage a relational database. Hierarchical data models, XML language, XML document validation (DTD and XML schemas). Semantic Web, Resource Description Framework Language (RDF/XML & RDF/TTL), RDF Query Language (SPARQL). Graph data management: introduction to the property graph model. Linked data analysis using neo4j. Introduction to the Cypher language. NoSQL systems for big data management. Application examples: social data analysis, document databases.

Prerequisites

None

Target Learning Outcomes

Upon successful completion of this course, students will be able to:

- Understand, appreciate and effectively explain the underlying concepts of data management.
- Apply conceptual database modeling methods to design a relational database.
- Use SQL language in conjunction with a modern RDBMS to define, query and manage a relational database.
- Use methods and tools to represent and manage linked data.
- Be familiar with the underlying concepts of big data systems.

Recommended reading

- Silberschatz, Korth, Sudarsham. Database system concepts. 6th ed., McGraw-Hill, 2010.
- Γιαννακουδάκης, Εμμανουήλ Ι. Συστήματα βάσεων δεδομένων, Αθήνα: Μπένος, 2009.
- Grigoris Antoniou & Frank van Harmelen. Εισαγωγή στον Σημασιολογικό Ιστό, Αθήνα:Κλειδάριθμος,2009.
- Bob DuCharme, Learning SPARQL. 2th ed, O'Reilly, 2013.

Teaching methods

One three-hour lecture per week, study exercises and programming exercises as homework (some to be submitted).

Assessment and grading methods

The final grade is the average of the final examination grade (50%) and the grade of the study and programming exercises to be submitted (50%).

Language of instruction: Greek

Y5. Digital Methods Application in the Humanities

Instructor: Agiatis Mpenardou (coordinator)

Mandatory, Teaching Period B, ECTS: 6,

Description and Content

Historical and theoretical review of the Digital Humanities. Theoretical and hands-on approach to digital methods for research and creative purposes. Digital Infrastructures. User requirements. Annotation. Digital Storytelling. Information Management. Workflows.

Prerequisites

None.

Target Learning Outcomes

- Basic familiarization with theoretical approaches to the Digital Humanities
- Understanding and training on a wide spectrum of digital methods
- Team work / interdisciplinarity

Recommended reading

- Antonijević, S. (2015). Workflows of digital scholars. In S. Antonijević, *Amongst digital humanists: an ethnographic study of digital knowledge production* (pp. 37–72). New York: Palgrave Macmillan US. https://doi.org/10.1057/9781137484185_3
- Benardou, A., Champion, E. M., Dallas, C., & Hughes, L. M. (2018). Introduction: a critique of digital practices and research infrastructures. In A. Benardou, E. M. Champion, C. Dallas, & L. M. Hughes (Eds.), *Cultural heritage infrastructures in digital humanities*. Abingdon, Oxon ; New York: Routledge. Retrieved from https://www.academia.edu/34807867/Introduction_a_critique_of_digital_practices_and_research_infrastructures

Teaching methods

One three-hour lecture per week, study exercises and programming exercises as homework (to be submitted).

Assessment and grading methods

The final grade is the average of the study exercises and programming exercises as homework grades (80%) and student participation in class (20%).

Language of instruction: Greek, English (for foreign invited speakers)

E1. Natural Language Processing

Instructor: Ioannis Pavlopoulos

Elective, Teaching Period B, ECTS:6

Description and Content

Basic knowledge of statistics. Python for Natural Language Processing. Data management and processing (library: Pandas). Accessing large text collections (library: NLTK). Data visualization (library: Seaborn). Data annotation, and processing of annotated data. Language modelling. Perplexity. Character, word, and text representations (library: Gensim). Machine learning for classification (library: scikit-learn). Machine learning for clustering. Interaction with large language models. Prompting techniques.

Prerequisites

For the programming exercises of the course, experience in Python programming is required. It is recommended that students also take the course "Basic Statistics."

Target Learning Outcomes

Upon successful completion of the course, students will be able to:

- Propose possible applications and implement basic natural language processing algorithms
- Use well-known libraries in Natural Language Processing
- Evaluate the results of automatic classification and clustering experiments

Recommended reading

- Speech and Language Processing, Daniel Jurafsky and James H. Martin, Pearson Education, 3rd edition, 2023, ISBN-13: 978-0135041963.
- Natural Language Processing with Python, Steven Bird, Ewan Klein, and Edward Loper, 1st edition, 2001, ISBN-13: 978-0596516499.

Teaching methods

One three-hour lecture per week, study and programming exercises at home (some to be submitted).

Assessment and grading methods

The final grade is the sum of the grades of the assignments, following oral (60%) and written assessment (40%).

Language of instruction: Greek

E2.Digitalization Technologies, techniques and applications

Instructor: Georgios Papaioannou

Elective, Teaching Period B, ECTS:6

Description and Content

PART I – Theory and Background

Introduction: Definitions and fundamental concepts. Digital Surrogates, digitization and sampling, quantization, compression and information reconstruction.

Color theory. Color representation, color models and color information coding, applications in digital image and video compression and storage.

Image and shape representation. The digital image: attributes, storage, file formats and applications. 2D vector graphics: coordinate systems, basic vector representations (lines, curves, filled shapes). Vectorization. 3D shapes: 3D coordinate systems and cameras, geometric transformations and projections, 3D data representations: polygonal meshes, range maps, point clouds, volumetric models). 3D file formats. Video and motion representation. Metrology and quantitative methods for cultural heritage.

Digitization and reproduction technology. Imaging hardware: sensors, cameras, flatbed and book scanners, etc. 3D digitization technology: triangulation, 3D scanners, photogrammetry, tomography. Motion capture. Image Generation Hardware: graphics hardware, display systems and projectors. Printing technologies: 2D/3D.

PART II – Practical digitization

2D digitization. Planning and procedures. Document scanning. Practical photography. Quality control. Digital archiving and collection management.

Practical image processing. Common defects and problems and their treatment. The image histogram and its applications. Image processing tools. Filtering, color correction and image enhancement.

Practical photogrammetry. Procedure and subject preparation. Photo acquisition. Model reconstruction and cleanup. Model export and publication.

Target Learning Outcomes

After completing the course, the students will be able to:

- Understand the requirements, functional aspects, fundamental principles and practical tools for digitization in the context of cultural heritage and other applications in digital humanities.
- Use established practical tools for the digitization of 2D and 3D content.
- Effectively setup, acquire and process photos for the population and cataloguing of digital photo repositories.
- Assess the qualifications of digital surrogates.
- Apply procedures and protocols for the quality control and content management of digitized assets.

Prerequisites

None.

Recommended reading

Lecture notes in electronic form (PDF). Downloadable from the eclass system.

Teaching methods

Lectures (3hrs/w), practical exercises (homework – 3 assignments), in-class discussion

Assessment and grading methods

Written examinations, accounting for the 80% of the final grade. The remaining 20% is the cumulative evaluation of the overall student's presence and the quality of the delivered assignments.

Language: Greek or English (depending to the audience)

E3. Interaction Design and Multimedia

Instructor: Andreas Alexandros Vasilakis

Elective, Teaching Period C, ECTS:6,

Description and Content

Multimedia authoring and management technologies. Interactive systems design models. Computer graphics fundamentals, Serious games and Immersive Technologies. Introduction to the Unity game engine: Intro to graphical user interfaces, camera, lights & shading, 3D assets & physics, events & scripting. Synthesis with interactive digital resources. User interface and interaction design. Practical development of an interactive application with Unity.

Prerequisites

For the programming assignment of the course, programming experience in Java or C# may be required. Students are advised to also attend the courses “Applications of Digital Methods in the Humanities” and “Digitization Technologies, Techniques and Applications”, but this is not required.

Target Learning Outcomes

After successfully completing the course, students will be able to:

- Understand the basic theoretical concepts of the digital image synthesis, interactive multimedia, and serious game design mechanisms.
- Acquire practical knowledge for effectively designing, development and publishing interactive digital applications using Unity game engine.

Recommended reading

- Graphics and Visualization: Principles & Algorithms, T. Theoharis, G. Papaioannou, N. Platis, N. M. Patrikalakis, 2008. ISBN: 978-1568812748
- Interaction Design: Beyond Human-Computer Interaction, 4th Edition, Jennifer Preece, Helen Sharp, Yvonne Rogers, 2015. ISBN: 9781119088790
- Unity Game Development in 24 Hours, Mike Geig, ISBN: 9780672336966

Teaching methods

One three-hour lecture per week, study exercises and learning of interaction development application platform (Unity) as homework.

Assessment and grading methods

The course includes the design, development, and presentation of a Unity project (which is going to be an interactive, immersive, multimedia application), which accounts for the 10/10 of the final course grade. The project is mandatory. At the end of the semester there is an oral examination test for the students whose project is at least 5/10 points to certificate their knowledge of using Unity for prototyping digital experiences. There will be no final writing exam.

Language: Greek

E4. Electronic lexicography

Instructor: Maria Gavriilidou

Elective, Teaching Period C, ECTS: 3

Content

Basic concepts of electronic lexicography. Objectives of lexicography. Dictionary typology. Structure of lexicographic information, macrostructure, microstructure, lexicographic metalanguage. Printed, electronic, computational lexicography. Lexicography and corpora. Issues related to corpus construction. Lexicography and language technology. Language resources. Principles and methodology for the creation of electronic dictionaries. Definition, senses, sense distinction criteria, representation levels. Linguistic annotation. Computer assisted dictionary creation.

Prerequisites

Students should have basic knowledge of philology, preferably with a specialization in linguistics.

Target Learning Outcomes

- Understanding the principles and methods of electronic lexicography.
- Development of skills for the analysis and structuring of linguistic and metalinguistic information to be included in a dictionary.
- Deployment of language technology applications for lexicographical tasks.

Recommended reading

Slides, accompanying material and bibliography distributed through the lecture's webpage.

Teaching methods

One three-hour lecture per week, 1 two-hour invited lecture, exercises as homework (to be submitted).

Assessment and grading methods

The final grade is the average of the final examination grade (70%) and the grade of the exercises submitted (30%).

Language: Greek

E5. Design Thinking and Innovation

Instructor: Athanasios Androutsos

Elective, Teaching Period C, ECTS: 6,

Contents

Design Thinking. Real-world problems. Problems in humanities. The role of education in cultivating creativity, innovation, and entrepreneurship. Innovative Educational Methodologies. Necessary skills in the 21st century. Problem identification, solutions design, testing, acceptance criteria. Double Diamond Methodology. The role of users. Co-creation. User-centered Design. Criteria for designing innovative solutions. Leadership, Start with why. Design Thinking for innovation: Empathy, Define, Ideate, Prototype, Test. Design vs Design Thinking. Innovation and design thinking. Implementing solutions in the digital web-based economy. Introduction to HTML. Cascading Styling Sheets. Box Model and Div. Design and development of web pages and applications. Design heuristics. Fluid & Responsive Design. Mobile First Design. Human-computer interaction (HCI). User interface design. Introduction to JavaScript. UX / UI Design. User Analysis, User Personas. Journey Maps, Touchpoints. Basic principles of UX Design. Usability. Information structure design, Cards Sorting. Visualization of information. Usability Tests. Real-world problems. Special topics: Education, LMS (Learning Management System). Moodle. Universal Design in Education. Service-oriented software architectures, Open APIs, XML / JSON, HTTP, Web Servers, Hosting Services, Remote file transfer, GitHub, social media promotion, field research & multimedia documentation, video recording (videocast), entrepreneurship as a prerequisite for innovation.

Prerequisites

Students should have basic knowledge in programming (e.g. in Python)

Target Learning Outcomes

After successfully completing the course, students will be able to:

- Identify real-world problems and design innovative solutions with user participation
- Design and develop web-based pages and applications with modern technologies and methods.
- Design user interfaces based on UX / UI Design methodologies and apply them to real problems
- Demonstrate professional skills in innovative design of solutions to real-world problems, such as: collaboration, co-creation, time management, design thinking, innovation, creativity.

Recommended Bibliography

- Tim Brawn, Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation, HarperBusiness, 2009.
- Simon Sinek, Start with Why: How Great Leaders Inspire Everyone to Take Action, Portfolio, 2011.
- Διαφάνειες, κείμενα και αναφορές που δίνονται μέσω της ιστοσελίδας του μαθήματος. / Presentations, texts and references given through the course website.

Teaching methods

One three-hour lecture per week.

Assessment and grading methods

The final grade is the average of the grade of a teamwork (project) based on the design-thinking methodology (70%) and the grade of an individual assignment and presentation on a specific topic (weight 30%).

Language: Greek

E6. Geographic information systems and spatial analysis in history and archaeology

Instructors: Markos Katsianis – Eleni Gkadolou

Elective, Teaching Period C, ECTS: 6,

Description and Contents

Basic principles of Geographic Information Systems (GIS) in Archeology and History are presented. Spatial data structures and geodesy. Databases and thematic mapping. Digitization of spatial data sets, geo-referencing of images. Spatial and thematic querying. Exploratory Data Analysis and Geostatistical Methods. Spatial Interpolation and Digital Terrain Models. Spatial transformations in Vector and Raster datasets. Advanced Vector and Raster Functions. Map composition. Instruction employs a combination of lectures and laboratory tutorials

Prerequisites

Students must have basic knowledge of data bases. It is recommended that students have attended the courses “Data Management” but it is not mandatory.

Target Learning Outcomes

- Familiarization with techniques used for acquiring, managing and visualizing archaeological and historical information in space.
- Understanding of the theoretical implications of GIS as analytical aids in History and Archeology.
- Learning of basic procedures for recording, processing, analyzing and presenting spatial data using standard GIS software packages and selected application examples.

Recommended reading

- Bodenhamer, D.J., Corrigan, J., & Harris, T.M. 2010. *The Spatial Humanities: GIS and the Future of Humanities Scholarship*. Bloomington: Indiana University Press.
- Conolly, J. & Lake, M. 2006. *Geographical Information Systems in Archaeology*. Cambridge University Press: Cambridge.
- Χαλκιάς, Χ. 2008. Γεωγραφικά Πληροφοριακά Συστήματα και Αρχαιολογία. Στο Λυριτζής, Ι. (επιμ.). *Νέες τεχνολογίες στις αρχαιολογικές επιστήμες*. Δαρδανός: Αθήνα. 337-358.
- Wheatley, D. & Gillings, M. 2003. *Spatial Technology and Archaeology: The Archaeological Applications of GIS*. Taylor & Francis.

Teaching methods

A weekly three hour lecture that includes projects. Four reading projects to cover issues of theoretical understanding as well as practical implementations (to be submitted).

Assessment methods

Final grade consists of the average grade of the submitted projects (80%) and the grade from participating and responding during lectures (20%).

Language: Greek

E7. Special Topics in Digital Methods for the Humanities - 1: Digital Technologies in papyri and manuscripts

Instructor: Stamatis Bouses (coordinator)

Elective, Teaching Period C, ECTS: 3,

Description and Contents

The course offers a modular interdisciplinary approach that focuses on completing the knowledge and developing the skills needed to utilize the link between Papyrology and Paleography and computer science. The course aims at training and know-how in those fields related to the management of the text carriers and the texts themselves, such as those found in papyri and manuscripts.

1° Lecture (Grace Ioannidou): Introduction to Papyrology and Paleography and their digital tools.

2° Lecture (Stamatis Bouses): Digitization of papyri and manuscripts (visualization, restoration, representation), creation and processing of images and management of digital collection.

3° Lecture (Raimondo Tocci): Digital coding: the description of the object and its digital recording (requirements for metadata, special categories such as papyrus files, bibliographic notes and page comments).

4° Lecture (Maria Konstantinidou): Digital Paleography. Image enhancement techniques. Mechanical reading of manuscripts (HTR).

5° Lecture (Stamatis Bouses- Maria Konstantinidou): From manuscript to edition. Collatio and digital editions.

Prerequisites

None

Target learning outcomes

- They will learn how to find texts on papyri and manuscripts and analyze them, in order to develop and answer research questions and understand remote research techniques and methods.
- They will gain supervision in the field of digital Papyrology and Paleography and technical skills and abilities that enable the treatment, preservation, dissemination and use of these primary sources in digital media.
- Will be able to locate primary and secondary papyrus and palaeographic sources on the internet and in libraries and use these sources to evaluate and determine how papyriologists and palaeographers use them to compose and deepen their analyses.
- They will specialize in the use of different techniques and types of digital data representation, in digital technologies for the processing of different types of data and will evaluate these theoretical approaches and methodologies in terms of their epistemological and practical adequacy.
- Utilize the potential of specific data types and data sets and apply their knowledge to

identify how systematic data collection can influence the understanding and analysis of papyrus and manuscript collections.

- They will have the opportunity to think critically about the ways of collecting, analyzing and editing the data of Papyrology and Paleography.

Recommended reading

- ANDORLINI, I. – REGGIANI, N. (2012), Edizione e ricostruzione digitale dei testi papiracei, in *Diritto romano e scienze antichistiche nell'era digitale. Convegno di studio* (Firenze 12–13 settembre 2011), a c. di N. Palazzolo, Torino, 131–46.
- DEL CORSO, L. (2007), Il progetto PSI On-Line: applicazioni informatiche per una filologia materiale dei testi papiracei, in *Digital Philology and Medieval Texts. Proceedings of the International Seminar* (Arezzo, 19–21 Gennaio 2006), ed. by A. Ciula and F. Stella, Pisa, 165–74.
- DELATTRE, A. – HEILPORN, P. (2014), Electronic Resources for Graeco-Roman and Christian Egypt: A Review of the State of the Net (March 2014), *BiOr* 71, 308–31.
- DEPAUW, M. – GHELDOLF, T. (2014), Trismegistos. An Interdisciplinary Platform for Ancient World Texts and Related Information, in *Theory and Practice of Digital Libraries. TPD 2013 Selected Workshops*, ed by Ł. Bolikowski, V. Casarosa, P. Goodale, N. Houssos, P. Manghi, and J. Schirrwagen, Berlin, 40–52.
- DRISCOLL, M.J. – PIERAZZO E. (2016), Digital scholarly editing: Theories and Practices in <https://www.openbookpublishers.com/reader/483#page/1/ mode/2up>
- FACCHINETTI, R. (2007), *Theoretical Description and Practical Applications of Linguistic Corpora*, Verona.
- FUERTES-OLIVERA, P.A. – BERGENHOLTZ, H. (2011), *E-Lexicography. The Internet, Digital Initiatives and Lexicography*, New York.
- FUERTES-OLIVERA, P.A. – TARP, S. (2014), *Theory and Practice of Specialised Online Dictionaries. Lexicography versus Terminography*, Berlin – Boston.
- FUERTES-OLIVERA, P.A. (2013), E-lexicography: The Continuing Challenge of Applying New Technology to Dictionary-Making, in *The Bloomsbury Companion to Lexicography*, ed. by H. Jackson, London – New York, 323–40.
- LEMBERG, I. (2001), Aspekte der Online-Lexikographie für wissenschaftliche Wörterbücher, in *Chancen und Perspektiven computergestützter Lexikographie*, hrsg. von I. Lemberg, B. Schröder und A. Storrer, Tübingen, 71–91.
- MAGNANI, M. (2008), “Sapere ex indicibus”, in *Scienze umane e cultura digitale. Atti della XVI Settimana della Cultura Scientifica* (Parma, 16–17 maggio 2006), a c. di A.M. Tammaro e S. Santoro, Fiesole – Firenze, 127–38.
- MCGANN, J. (2010), Introduction, in *Online Humanities Scholarship: The Shape of Things to Come*, ed. by J. McGann, Houston, 1–4.
- REGGIANI, N. (2012), Le tavolette della mente. Risorse digitali e Antichistica: il caso della Papirologia, in *Umanisti e risorse digitali*, a c. di A.M. Tammaro, Parma, 88–110.
- REGGIANI, N. (2015), A Corpus of Literary Papyri Online: the Pilot Project of the Medical Texts via SoSOL, in *Antike Lebenswelten Althistorische und papyrologische Studien*, hrsg. von R. Lafer und K. Strobel, Berlin – New York, 341–52.
- REGGIANI, N. (2017), *Digital Papyrology I. Methods, Tools and Trends*, Berlin – Boston.
- SCHREIBMAN, S. – SIEMENS, R. – UNSWORTH, J. (2004), eds., *A Companion to Digital Humanities*, Oxford.

- SCHREIBMAN, S. – SIEMENS, R. –UNSWORTH, J. (2016) A New Companion to Digital Humanities, Chichester: Wiley Blackwell.
- STOKES, P.A. (2009), Computer-Aided Palaeography, Present and Future, in Codicology and Palaeography in the Digital Era, 309-338.
- SVENSSON, P. – GOLDBERG, D.T. (2015), eds., Between Humanities and the Digital, Cambridge (MA).
- VAN LIT L.W.C. (2019), Among Digitized Manuscripts. Philology, Codicology, Palaeography in a Digital World. Brill.

Teaching Methods

Each Instructor determines the specific teaching approach, according to the needs of the lecture topic.

Assessment Method

Weekly Project of developing essays or final written project.

Language: Greek

E8. Special Topics in Digital Methods for the Humanities – 2: Transforming Text into Knowledge Graphs

Instructors: Vayianos Pertsas

Elective, Teaching Period C, ECTS: 3

Description and Contents

The course offers an extensive demonstration of digital methods used in modeling and transformation of human readable text into machine-comprehensible Knowledge Graphs

Students are familiarizing themselves with practical issues involving: conceptual modeling; use, evaluation and population of ontologies; use of APIs for communicating with digital repositories; metadata acquisition and processing; web scraping techniques; methods for data preprocessing; distance supervision techniques; annotation workflows; use and evaluation of Machine Learning and specifically Deep Learning algorithms for Text Classification and Named Entity Recognition, Semantic Web standards for RDF triple generation, Visualizations.

Due to the practical approach of the course all the above subjects are analyzed as various stages of a single meaningful workflow, that of modeling and transforming research articles into Knowledge Graphs. However, a short presentation of the theoretical background for each demonstrated method is provided when necessary.

Prerequisites

Students must be familiarized with Python Programming Language.

In addition, there is extended use of the Python libraries: RDFLib, BeautifulSoup, as well as SpaCy NLP framework and Prodigy annotation software. Short introductions to these tools will be given. However, students are encouraged to familiarize themselves with these tools through their corresponding documentation:

<https://spacy.io/>

<https://prodi.gy/>

<https://www.crummy.com/software/BeautifulSoup/bs4/doc/>

<https://rdflib.readthedocs.io/en/stable/>

The course focuses on the combination and practical use of methodologies that are analyzed more extensively in the courses “Y2. Information and Knowledge Representation and Organization” and “E1. Language Technology”. It is recommended but not mandatory that students have attended the above courses.

Target Learning Outcomes

Students are expected to take away a substantial overview of the state-of-the art in methodologies covering the entire workflow from designing models to capture knowledge in a specific domain (in our case, scholarly work), to the creation of knowledge bases by populating these models with information extracted from text (using deep learning techniques) along with

linked data or publication metadata mined from the Web. Specifically, upon completion of the course, students are expected to be able to:

- Design, evaluate and implement domain ontologies in Python.
- Use APIs in order to connect to digital repositories and acquire data.
- Use web scraping techniques in order to harvest information from web sites.
- Employ text cleaning and metadata processing methods.
- Employ distance supervision techniques for fast labeling and annotation of data.
- Operate the entire workflow (organization, creation and evaluation) for annotation of datasets.
- Employ Machine Learning and specifically deep Learning Algorithms for text classification and Named Entity Recognition.
- Visualization techniques for NLP and Machine Learning.
- Combination of data from various sources and Knowledge Graph creation using Semantic Web standards.

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- G. Antoniou, P. Groth, F. Harmelen, R. Hoekstra. A Semantic Web Primer. London: MIT Press, 2004
- Pustejovsky, J., and Amber Stubbs. Natural Language Annotation for Machine Learning. Sebastopol, CA: O'Reilly Media, 2013.

Teaching methods

A weekly three-hour lecture that includes exercises / projects. Four projects to cover issues of practical implementations (to be submitted).

Assessment methods

Final grade consists of the average grade of the submitted projects (80%) and the grade from participating and responding during lectures (20%).

Language: Greek

E9. Legal issues in information and digital media management

Instructor: Lilian Mitrou

Elective, Teaching Period C, ECTS:3

Description and Contents

Privacy and Personal data/Information, personal data governance and data protection, protection of Informational privacy : regulatory aspects. Scientific research and protection of personal data with focus on historical/ social research, right to be forgotten v. right to (access) to information, legal and regulatory issues with regard to open data. Intellectual property – Protection of intellectual property rights in Internet/ with regard to artificial intelligence.

Target Learning Outcomes

Upon completion of this course the students are expected to:

- To gain an overview of the legal and institutional issues which pertain to information and digital media management.
- To gain knowledge and understanding of the regulatory context, main rules and principles with focus on (personal) data protection and intellectual property rights with regard to the use of use new technologies.

Prerequisites

None

Recommended reading

- Λ. Μήτρου, Γενικός Κανονισμός Προστασίας Δεδομένων, Αθήνα 2017
- **L. Mitrou**, The General Data Protection Regulation: A Law for the Digital Age? σε T. Synodinou et al. (Eds), EU Internet Law, Regulation and Enforcement, Springer 2017, pp. 19-57
- Α. Βόρρας, **Λ. Μήτρου**, Τεχνητή νοημοσύνη και προσωπικά δεδομένα – Μία θεώρηση υπό το πρίσμα του Γενικού Κανονισμού Προστασίας Δεδομένων, ΔΙΜΕΕ 4/2018, σελ. 460-466
- **Λ. Μήτρου**, Το κανονιστικό κέλυφος του ιδιωτικού – Ο ιδιωτικός βίος και το δικαίωμα πληροφόρησης, σε Εταιρεία Σπουδών Νεοελληνικού Πολιτισμού και Γενικής Παιδείας, Περιπέτειες του ιδιωτικού στη μεταπολιτευτική Ελλάδα, Αθήνα 2019, σελ. 125-146
- **Λ. Μήτρου**, Το δικαίωμα στη λήθη στον Γενικό Κανονισμό Προστασίας Δεδομένων: μία απόπειρα οριοθέτησης, σε ΚΔΕΟΔ/Β. Τζώρτζη (επιμ.), Προστασία των δεδομένων προσωπικού χαρακτήρα, Αθήνα-Θεσσαλονίκη 2018, σελ. 35-58
- EPRS | European Parliamentary Research Service, How the General Data Protection Regulation changes the rules for scientific research, July 2019
- Daniel Gervais, Is Intellectual Property Law Ready for Artificial Intelligence?, *GRUR International*, Volume 69, Issue 2, February 2020, Pages 117–118, <https://doi.org/10.1093/grurint/ikz025>
- R. Dekker. Social data: CESSDA best practices. *Data Intelligence* 2(2020), 220–229. doi: 10.1162/dint_a_00044

- Senftleben, Martin, Bermuda Triangle – Licensing, Filtering and Privileging User-Generated Content Under the New Directive on Copyright in the Digital Single Market (April 4, 2019). Available at SSRN: <https://ssrn.com/abstract=3367219>
- Montagnani, Maria Lillà and Trapova, Alina, New Obligations for Internet Intermediaries in the Digital Single Market – Safe Harbors in Turmoil? (January 1, 2019). *Journal of Internet Law*, Jan 2019, Vol. 22 Issue 7, p3-11. 9p.. Available at SSRN: <https://ssrn.com/abstract=3361073>
- Quintais, João and Frosio, Giancarlo and Gompel, Stef van and Hugenholtz, P. Bernt and Husovec, Martin and Jütte, Bernd Justin and Senftleben, Martin, Safeguarding User Freedoms in Implementing Article 17 of the Copyright in the Digital Single Market Directive: Recommendations From European Academics (November 11, 2019). Available at SSRN: <https://ssrn.com/abstract=3484968>
- Guadamuz, Andres, Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in Artificial Intelligence Generated Works (June 5, 2017). *Intellectual Property Quarterly*, 2017 (2). Available at SSRN: <https://ssrn.com/abstract=2981304>

Teaching Language: Greek

E10. Basic Statistics

Instructor: Vasilis Vasdekis

Elective, Teaching Period B, ECTS: 6

Description and Contents

Descriptive statistics, location and variance indices, graphs. Definition of probability, probability distributions, binomial distribution, normal distribution. Principles of inference, hypothesis testing, confidence intervals, testing equality of means. Introduction to categorical data analysis. Correlation and linear regression.

Prerequisites

None

Target Learning Outcomes

After successfully completing the course, students will be able to:

- have a basic knowledge in probability and statistics,
- use basic statistical principles for decision making,
- apply statistical techniques through a programming language (R).

Teaching methods

One three-hour lecture per week, study exercises as homework (all to be submitted).

Assessment Methods

The final grade is the weighted average of the final examination grade (60%) and the grade of the study and programming exercises to be submitted (40%).

Language: Greek

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS GENERAL INFORMATION

Address: 76, Patission Str., GR-10434, Athens, Greece

Web: <https://www.aueb.gr>

Facebook: <https://www.facebook.com/auebgreece>

Twitter: <https://twitter.com/aueb>

E-mail: webmaster@aub.gr

Telephone: +30-210-8203911

UNIVERSITY LEADERSHIP & STRUCTURE

The organization and operation of the Institution is defined by current legislation as in force. Athens University of Economics and Business is under the supervision of the Ministry of Education, Research and Religious Affairs. Its structure includes:

THE SENATE

The **Senate** consists of:

- the Rector,
- the Vice-Rectors,
- the Deans of the Schools
- the Heads of the Departments
- one representative of undergraduate students, postgraduate students and doctoral candidates each
- one representative per category of staff: Special Educational Staff (EEP), Laboratory Teaching Staff (EDIP), Special Technical Laboratory Staff (ETEP) and administrative staff.

The **Senate** is the highest collective decision-making body of the University. It is comprised of the Rector, the Vice-Rectors, the Deans of the Schools, the Chairmen/Chairwomen of the Departments, students, teaching staff and administrative staff delegates.

SCHOOLS

The Athens University of Economics and Business consists of three Schools:

- 1. SCHOOL OF ECONOMIC SCIENCES**, which supervises and coordinates the operation of the Department of International and European Economic Studies and the Department of Economics.
- 2. SCHOOL OF BUSINESS**, which supervises and coordinates the operation of the Department of Management Science and Technology, the Department of Business

Administration, the Department of Accounting and Finance and the Department of Marketing and Communication.

3. SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY, which supervises and coordinates the operation of the Departments of Informatics and the Department of Statistics.

According to Law 4485/2017 (Government Gazette 114 / 4-8-2017), each School is governed by the Dean of the School, the Dean's Council and the School's General Assembly, while each Department is governed by the Department's Chairman and General Assembly.

DEPARTMENTS

The Department is the University's main educational and academic unit, which promotes science and knowledge development in the relevant academic field, organizes and delivers teaching and ensures continuous improvement in research and education. The Department consists of the Professors, Associate Professors, Assistant Professors, Lecturers, members of the Special Educational Staff (EEP), members of the Laboratory Teaching Staff (EDIP) and members of the Special Technical Laboratory Staff (ETEP).

The Departments of the Athens University of Economics and Business are:

1. International and European Economic Studies
2. Economics
3. Management Science and Technology
4. Business Administration
5. Accounting and Finance
6. Marketing and Communication
7. Informatics
8. Statistics

According to Law 4485/2017 (Government Gazette 114 / 4-8-2017), each Department is governed by the Department's Chairman and the General Assembly.

UNIVERSITY STAFF

The University staff consists of the following categories:

- TEACHING STAFF:

- The Faculty consisting of (a) Professors, (b) Associate Professors (c) Assistant Professors and (d) Lecturers.
- Special Educational Staff (E.E.P.).
- Laboratory Teaching Staff (E.D.I.P.).
- Special Technical Laboratory Staff (E.T.E.P.).
- Auxiliary Teaching Staff (E.D.P.).
- Research Assistants.
- University Scholars.
- Special Assignment Teachers.

- ADMINISTRATIVE STAFF

STUDENT SERVICES & FACILITIES

The Athens University of Economics and Business provides both administrative and other services (meals, housing, library, sport facilities etc.) aiming at serving both its students and staff. More information on the organization and operation of the University's services can be found on the University's website (<http://www.aueb.gr/en>).

GENERAL DESCRIPTION OF THE UNIVERSITY

Athens University of Economics and Business (AUEB), as a Higher Educational Institution, is a legal entity governed by public law and supervised by the Ministry of Education, Research and Religious Affairs.

AUEB is, in order of seniority, the third Higher Education Institution of the country and the first in the fields of Economics and Business Administration. Later, the scientific fields of Informatics and Statistics were added. Since its founding, in 1920, AUEB has a rich and noteworthy tradition of significant academic achievements that define the present and create excellent prospects for the future.

The University as a center of excellence, in academic research and teaching, is rated as one of the leading universities in its subject areas in Greece and one of the best internationally. The high level of its scientific staff, the quality in teaching and research, the modern curriculum/courses, but also the high demand of its graduates enhance significantly the University's brand name and reputation, in Greece and abroad.

LIST OF DEGREE PROGRAMMES

Athens University of Economics and Business offers the following Degrees and streams:

| A/A | DEPARTMENTS | SPECIALIZATIONS |
|------------|---|---|
| 1. | International and European Economic Studies | 1. International Economics and Finance 2. International and European Political Economy |
| 2. | Economics | 1. Economic Theory and Policy 2. Business Economics and Finance 3. International and European Economics |
| 3. | Management Science and Technology | 1. Operations Research and Business Analytics 2. Operations and Supply Chain Management 3. Software and Data Analysis Technologies 4. Information Systems and Electronic Business 5. Strategy, Entrepreneurship and Human Resources |
| 4. | Business Administration | 1. Business Administration 2. Information Systems Management 3. Accounting and Financial Management 4. Marketing |
| 5. | Accounting and Finance | 1. Accounting 2. Finance |
| 6. | Marketing and Communication | 1. International Management, Innovation and Entrepreneurship 2. Human Resource Management 3. Business Analytics |

| | | |
|----|-------------|--|
| | | 4. Digital Marketing |
| 7. | Informatics | <ol style="list-style-type: none"> 1. Theoretical Computer Science 2. Computer Systems and Networks 3. Information Systems and Information Security 4. Databases and Knowledge Management 5. Operational Research and Economics of Information Technology 6. Computational Mathematics and Scientific Calculations |
| 8. | Statistics | No specializations are offered |

Detailed information about programs and curriculum is provided in each department's study guide and website.

ADMISSION/REGISTRATION PROCEDURE

Admission for undergraduate students to each department is accomplished through central University entrance exams (Pan-Hellenic examinations). The registration of the successful candidates of these exams, in the Schools and Departments of the University takes place in September on the platform of mandatory electronic registration, according to the guidelines of the Ministry of Education, Research and Religious Affairs.

MAIN UNIVERSITY REGULATIONS

The regulations include:

- The Internal Regulations for the Operation of the Institution
- The Organization of Administrative Services
- The Regulations for the Operation of Postgraduate and PhD Programs
- The Internal Regulation for postdoctoral research
- The Exam Guide

ECTS COORDINATOR OF THE UNIVERSITY

The University's ECTS Coordinator is the Quality Assurance Chairperson, who ensures the University's compliance with the principles and rules of the European credit accumulation and transfer systems, supervises compliance and implementation and is responsible for the full recognition and transfer of credit units.

PART III: INFORMATION FOR THE STUDENTS

GENERAL INFORMATION FOR THE STUDENTS

Athens University of Economics and Business provides not only high-quality education but also high quality student services. The adoption of the Presidential Decree 387/83 and Law 1404/83 defines the operation, organization and administration of Student Clubs at Universities, which aim at improving the living conditions of the students and enhance their social and intellectual wellbeing through engagement and socialization initiatives.

To fulfill this objective the University ensures the required infrastructure for housing, meals and sports activities through the operation of a student restaurant, reading rooms, library, organization of lectures, concerts, theatrical performances and excursions in Greece and abroad. Further in this context, the University supports the development of international student relations, organizes foreign language classes, computer/software literacy classes, and courses in modern Greek as a foreign language for foreign students and expatriated Greek students.

Meals

In the main building of the University there is a restaurant where all members of the university community can enjoy meals for free or by paying a minimum fee. Free meals are granted to those who meet special conditions (by contacting the Student Club).

Medical Services, Insurance / Healthcare

Undergraduate, postgraduate and PhD students of the University who have no other medical and hospital care are entitled to full medical and hospital care in the National Health System with coverage of the relevant costs by the National Health Service Provider. The doctor's office is located in the main building and operates on some working days as announced. A psychiatric counseling service also operates at the University, staffed with a physician specializing in the treatment of mental health issues. More information can be found here <https://www.aueb.gr/en/content/health-care> .

Services/Facilities to Students with Special Needs

Athens University of Economics and Business ensures the facilitation of students with special needs for access to the university buildings through ramps, lifts and other equipment. There are also specific exam regulations for students with special needs.

In addition, the Library provides students with visual impairment with aids to access online the proposed reading lists of the courses taught at the University. In this context, the Association of Greek Academic Libraries has developed a multimodal electronic library called AMELIB. Entry to this service requires user authentication as well as username and password. More information can be found on the Library website <https://www.aueb.gr/en/lib/content/users-additional-needs> .

Student Financial Aid – Scholarships and Awards

Athens University of Economics and Business offers scholarships to undergraduate and graduate students in order to support them and to award and encourage excellence. The resources for these scholarships come from the Institution itself or from partnering

organizations. More information about scholarships, according to the level of studies, can be found here <https://www.aueb.gr/en/content/scholarships> .

Library and Study Rooms

The Library & Information Center of the University was established in 1920 and operates on the first and second floor of the University's main building. The AUEB Library is a member of the Hellenic Academic Libraries Association (Heal-LINK), the European Documentation Centers Europe Direct and the Economic Libraries Cooperation Network (DIOB).

Three Documentation Centers operate within the Library:

- The European Documentation Center (KET) since 1992,
- The Organization for Economic Cooperation and Development (OECD) Documentation Center since 1997,
- The Delegation Center of the World Tourism Organization (WHO) hosting publications since 2004.

The Library contributes substantially both to meeting the needs for scientific information of the academic community and to supporting studying and research of students. This objective is achieved through the unified organization of collections and the coordination of the services provided. The Library provides access to:

- Its printed collection of books and scientific journals,
- Course books used in classes,
- Its collection of electronic scientific journals
- Its collection of e-books
- Postgraduate theses and doctoral theses that are produced in Athens University of Economics and Business and deposited in digital form at the PYXIDA institutional repository
- Sectoral studies
- Statistical series by national and international organizations
- Audiovisual material
- Information material (encyclopedias, dictionaries)
- Collection of official government publications of the European Union, the OECD and the WCO
- Databases on the issues adopted by the University
- Printed collections of other academic libraries

The Library lends all its printed collections, except for magazines and statistical series, in accordance with its internal rules of operation. The Library and Information Center offers reading rooms, computer workstations for visitors, photocopiers and printing machines, and interlibrary loan of books and journal articles from other academic libraries that are members of its network. More information can be found here <https://www.aueb.gr/en/library> .

International Programmes and Information on International Student Mobility

Athens University of Economics and Business is actively involved in the Erasmus+ Program by promoting cooperation with universities, businesses and international organizations of the European Union (EU) as well as in the mobility of students, teaching and administrative staff. Within the framework of this Program, the University collaborates with more than 220

European Institutions on the subjects that its Departments encompass. It is worth mentioning that more than 7,000 students have participated in the "Erasmus" Program to date. Of these, approximately 4,000 AUEB students have attended courses at Associate Universities in Europe and about 3,000 foreign students who have completed a period of study at AUEB ensure accreditation through the Credit Transfer and Accumulation System (ECTS).

Finally, AUEB, adopting the internationalization and extroversion strategy, has been successfully participating in the International Credit Mobility Program with the aim of developing international collaborations in education and research with Partner Universities in countries outside the EU via:

a) student mobility b) short-term teaching staff mobility and c) teaching / administrative staff training mobility. The Program was first implemented in the academic year 2015-2016, and since then a total of 52 students and staff members moved from and to 8 Partner Institutions in countries outside the EU (USA, Canada, Singapore, Russia, South Korea, Armenia). More information can be found in the here <https://www.aueb.gr/en/content/erasmus-programme>

Foreign Language Courses

Knowledge of foreign languages is a necessity in today's educational and professional context. The Student Club offers opportunities of attending foreign language classes. Classes are held in English, French, German, Spanish, Italian and Russian, and new language seminars are available upon request. More information can be found here <https://www.aueb.gr/en/content/foreign-languages-university-student-club>.

Connections with the Job Market and Entrepreneurship

DASTA AUEB is the University's Employment and Career Unit that plans, coordinates and implements actions related to:

- a) Entrepreneurship and innovation
- b) Connecting students and graduates with the labor market
- c) Connecting the academic community with businesses
- d) Offering internships, and
- e) Supporting dissemination of research output.

DASTA is structured in three units:

- a) the Internship and Career Unit, that focuses on supporting our students and graduates in their professional development. The Unit also offers consulting services to students and graduates regarding work and educational future.
- b) the ACEin Unit (Athens Center for Entrepreneurship and Innovation). Its goal is to support business ventures focused on implementing an innovative idea, develop a sustainable business effort or exploit the results of their research. At the same time, the Unit organizes actions that are part of a wider network between the Unit and the market in specific productive sectors.

More information can be found here <https://www.aueb.gr/en/dasta>

Athletic Activities

Students can participate in individual and team sports activities through the Department of Physical Education, which is staffed by University personnel, as well as a number of part-time instructors specialized in various sports. The University cooperates with the City of Athens Culture, Sports and Youth Organization and uses public and private sports facilities. More information can be found here <https://www.aueb.gr/en/content/athletic-activities>

Cultural Activities

To fulfill its purpose of providing a multidimensional study experience at AUEB, the Student Club organizes various cultural activities, such as theater, traditional dance, choir, photography, cinema, rhetorical club and Model Of United Nations (MUN). More information can be found here <https://www.aueb.gr/en/content/cultural-activities>

Student Organizations and Clubs

Various student organizations and clubs are active within the AUEB community, including AIESEC, Erasmus Club, Investment Club, Entrepreneurship Club ThinkBiz, and other. More information can be found here <https://www.aueb.gr/en/content/student-clubs>

Alumni Network

Adhering to a long tradition of educating future top executives in the economic, social and political life of the country, AUEB is proud of the fact that thousands of its graduates hold leading positions in companies, organizations, research institutes and universities in Greece and abroad. Understanding the importance of developing and strengthening the bond with its graduates, AUEB created its Alumni Network including a platform where all graduates of the University can register. The main goals of the Network are the connection of the graduates with their colleagues and former fellow students, and diffusion of information about activities, services and events in and around the University that concern them. More information can be found here <https://alumni.aueb.gr/en>

Volunteer Program

AUEB's Volunteer Program was launched in September 2017 and since then has brought more than 450 volunteers to for-impact organizations around Athens, implementing more than 50 volunteer activities. The aim of "AUEB Volunteers" is to give the chance to the members of university's community, i.e. students, faculty and administrative staff, to experience volunteering so as to highlight the value of participation and contribution to society and the university, as well as to sensitize more citizens about crucial social issues. More information can be found here <https://auebvolunteers.gr/english-intro/>

Quality Assurance

Athens University of Economics & Business implements a quality assurance policy in order to continuously improve the quality of its educational programs, research activities and administrative services, and upgrade the academic and administrative processes and the University's overall operations. The Quality Assurance Unit (MODIP) coordinates and supports all related activities including the administration of the University-wide teaching

and course evaluation process by students across all programs. More information can be found here <https://aueb.gr/modip> .

Education and Lifelong Learning Center

The Center for Education and Lifelong Learning (KEDIVIM / AUEB) ensures the coordination and interdisciplinary cooperation among all University entities in the development of continuous education programs, which complement and upgrade the skills and competences of the program participants. These programs build on participants earlier formal education, vocational training and professional experience. The aim is to facilitate job market integration, career and personal development. More information can be found here <https://www.aueb.gr/en/content/kedivim-opa>