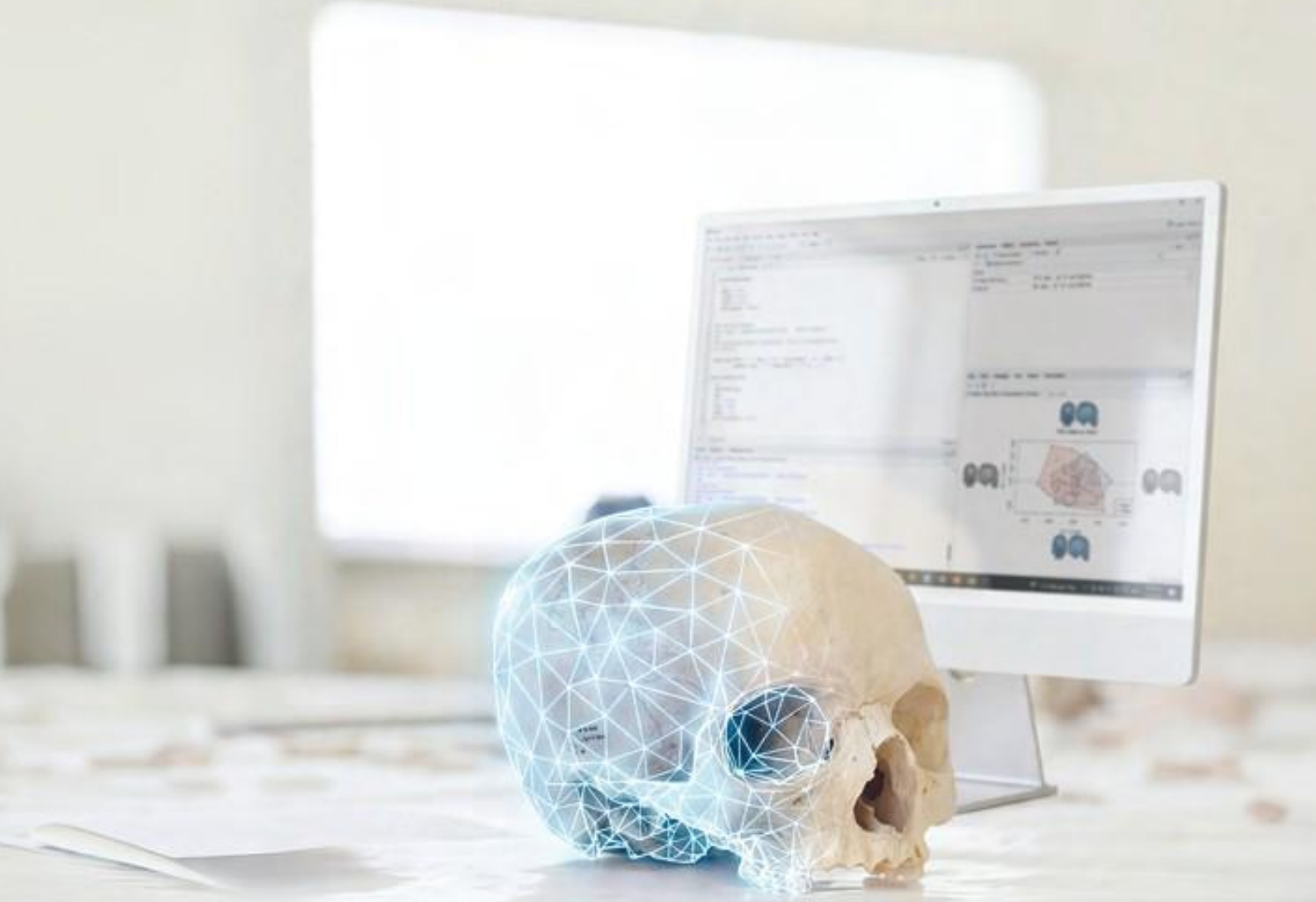
ΔΗΜΟΚΡΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ | DEMOCRITUS UNIVERSITY OF THRACE

Universität Zürich[UZH]

EVOLUTIONARY MEDICINE

Democritus University of Thrace
University of Zurich



Study Guide

DEMOCRITUS UNIVERSITY OF THRACE

STUDY GUIDE

Joint Postgraduate Studies Program (PSP)

"Evolutionary Medicine"

Department of Humanities - School of Humanities

Democritus University of Thrace

in collaboration with the Institute of Evolutionary Medicine, University of Zurich

Contents

PART A

INFORMATION ON INSTITUTIONS AND INFRASTRUCTURE

MS: Evolutionary Medicine

1. Democritus University of Thrace

1.1 Brief Information

Democritus University of Thrace (DUTH) was founded in 1973 and began operations during the 1974–1975 academic year, with the first departments based in Xanthi and Komotini. It was named "Democritus" in honor of the ancient Greek philosopher Democritus, who was a native of Abdera in Thrace. The University's administrative headquarters are located in Komotini, while its academic and administrative presence extends to cities throughout the Region of Eastern Macedonia and Thrace.

Since its founding, the University of Eastern Macedonia and Thrace (UEMT) has developed as a regional, multidisciplinary university, linking its educational and research mission with the social, cultural, and economic development of the wider region. Its operation has strengthened the presence of higher education in Thrace, while supporting the generation of new knowledge, the development of scientific expertise, and the University's connection with society.

The Democritus University of Thrace ranks among the country's major universities, offering a wide range of Schools, Departments, and Graduate Programs. Its multidisciplinary academic profile spans the humanities and social sciences, health sciences, education sciences, legal and economic sciences, engineering sciences, agricultural and forestry sciences, as well as physical education and sports science.

In today's academic environment, the Democritus University of Thrace emphasizes educational and research excellence, internationalization, innovation, the use of digital technologies, and the development of partnerships with universities and research institutions in Greece and abroad. The Joint Master's Program "Evolutionary Medicine," organized by the Department of Humanities of the School of Humanities at the Democritus University of Thrace in collaboration with the Institute of Evolutionary Medicine at the University of Zurich.

1.2 Facilities

The facilities of Democritus University of Thrace are located in various cities across the Region of Eastern Macedonia and Thrace, supporting teaching, research, administration, and student services. The University has campuses and building infrastructure in the centers of the cities where it operates, including classrooms, lecture halls, libraries, laboratories, administrative offices, athletic facilities, student housing, and dining facilities.

The Komotini Campus is located approximately five kilometers from the city center and includes the University's academic, administrative, and student facilities, such as teaching buildings, administrative offices, a central auditorium, a restaurant, student housing, and athletic facilities. At the same time, university facilities in the center of Komotini house academic and administrative

activities, including the infrastructure of the Department of Humanities, which provides administrative support for the Master's program.

In Xanthi, there are university facilities that primarily support studies and research in engineering sciences, including classrooms, laboratories, a library, lecture halls, and student facilities. In Alexandroupoli, facilities are being developed that primarily support the health sciences and education sciences, including academic buildings, laboratories, libraries, lecture halls, and student amenities. In Orestiada, facilities are in operation that serve the educational and research needs of agricultural and forestry sciences, as well as student support infrastructure.

1.3 Digital Services and Student Support Infrastructure

Democritus University of Thrace offers digital services that support student learning, communication, academic updates, and access to educational resources. Upon completing their registration, graduate students receive an institutional account, through which they have access to the University's online services throughout their studies.

The core services supporting graduate students include:

- Online Registrar's Office, for information regarding courses and grades and for submitting requests for certificates and transcripts.
- Institutional email, for official communication with the Office, faculty, and the services of the Democritus University of Thrace.
- Microsoft 365 and Microsoft Teams, for collaboration, communication, and participation in modern distance learning activities.
- Open eClass, for access to online courses, educational materials, assignments, and announcements of the Master's Program.
- Library and Information Center, for access to collections, electronic resources, and scientific information services.
- Student ID and other online student support services, in accordance with current procedures.

At the start of the first semester, an online orientation session is scheduled for new graduate students, during which the program structure, e-learning platforms, academic requirements, available services, and procedures for completing the program.

The methods and means of conducting the distance learning process are presented in detail in section 3.11 of this Guide.

1.4 Websites and Communication

Democritus University of Thrace	https://duth.gr

Department of Humanities	https://hs.duth.gr/
Laboratory of Biological Anthropology, Democritus University of Thrace	https://anthropologylab.classic.duth.gr/
Institute of Evolutionary Medicine, University of Zurich	https://www.iem.uzh.ch/en.html
MS Program Website	https://evolutionarymedicine.hs.duth.gr/
Department of Humanities Secretariat	secr@hs.duth.gr | +30 25310 39900
Department Mailing Address	1 P. Tsaldari St., 69100 Komotini, Greece

2. 2. Partner Institutions

2.1 Department of Humanities

The Department of Humanities at the School of Humanities of the Democritus University of Thrace was established in 2024 and is based in Komotini. Its academic profile is interdisciplinary and covers fields related to literature, history, anthropology, culture, and digital applications in the humanities.

The Department offers two undergraduate programs: the B.A. in "Literature, History, and Anthropology" and the B.A. in "Digital Applications in the Arts and Culture." The operation of the Master's Program in "Evolutionary Medicine" expands the Department's graduate and international profile, drawing particularly on its anthropological, bioarchaeological, and biomedical research dimensions.

The Department's mission is linked to providing interdisciplinary education, fostering critical and research-oriented thinking, utilizing digital technologies, and strengthening collaborations with academic and research institutions in Greece and abroad.

Departmental Infrastructure and Research Environment

According to the Department's available data, its infrastructure includes two lecture halls with a total capacity of 850 seats, seventeen classrooms with a total capacity of 1,242 seats, five conference and seminar rooms, computer labs, a library, administrative support areas, and fifteen research laboratories. The Department's facilities and infrastructure are reported to be accessible to individuals with mobility impairments.

The Department's research profile is based on the activity of its laboratories and the participation of its members in national and international research projects. The Department's available presentation materials indicate a total budget for funded projects of nearly 8,000,000 euros over the past eight years, including funding from the European Research Council (ERC).

2.2 Laboratory of Biological Anthropology, Democritus University of Thrace

The Laboratory of Biological Anthropology at Democritus University of Thrace was founded in 1993 and serves as a key academic and research infrastructure supporting the Master's Program in "Evolutionary Medicine." Its focus is the study of human biological diversity and the human past

through interdisciplinary approaches, combining macroscopic examination of human skeletal remains with histological, imaging, isotopic, genetic, and demographic analyses.

The Laboratory's main research areas include stable isotope analysis for the reconstruction of dietary patterns, mobility, and breastfeeding and weaning practices; histological studies to investigate bone microstructure and pathological changes; population genetics to analyze patterns of genetic diversity in prehistoric and historical populations; demography to understand the dynamics of human populations, as well as facial reconstruction and digital documentation of human remains.

During the period 2014–2024, the Laboratory established itself as a modern center of research excellence with a strong international presence and a substantial contribution to the study of the human past and the promotion of cultural heritage. Its research team has carried out competitive European and national research projects focused on the analysis and documentation of human skeletal remains and cultural heritage, with a total budget exceeding 10,000,000 euros, of which 4,000,000 euros were allocated to the Democritus University of Thrace.

Of particular importance is the funding from the European Research Council (ERC) for the research project *"CityLife: A bioarchaeological study of 1,800 years of resilience and adaptation to urbanity*". This funding represents a significant international distinction for the Democritus University of Thrace and the Laboratory, strengthening their position in the field of bioarchaeological study, human adaptation, and evolution. At the same time, the Laboratory has secured funding to support early-career researchers through competitive fellowships and research programs, including five fellowships from the State Scholarship Foundation (IKY) and one from the Hellenic Foundation for Research and Innovation (ELIDEK).

The Laboratory's international impact is reflected in its members' participation in major international conferences, as well as in the publication of research results in prestigious scientific journals such as *Cell*, *Proceedings of the National Academy of Sciences,* Genome Biology. The research team's work has also been recognized through international awards from scientific organizations, such as the Dental Anthropology Association and the Society for Archaeological Sciences, as well as from international publishers.

The Laboratory's educational and institutional contributions are also significant. Since 2017, it has supported the operation of the first inter-institutional Master's Program in Biological Anthropology in Greece, contributing to the training of young scientists specializing in the study of human remains, bioarchaeology, and modern laboratory applications. Furthermore, it has developed a network of collaborations with public and private institutions, strengthening the connection between academic research and society, culture, and applied scientific practice.

Laboratory Infrastructure

The Laboratory of Biological Anthropology is equipped with specialized facilities for stable isotope analysis, histological study, imaging applications, and osteological analysis. These facilities directly

support the educational and research objectives of the Master's program, particularly in the fields of human evolution, skeletal adaptation, bioarchaeology of health and disease, paleopathology, and modern analytical methods.

Stable Isotope Laboratory

The Stable Isotope Laboratory supports the extraction of collagen from archaeological bones and teeth, as well as from modern samples. It enables the application of isotopic analyses to study diet, mobility, the environment, and specific biographical parameters of human populations. Its equipment includes:

- a Sercon EA-IRMS system for the analysis of carbon, nitrogen, oxygen, and hydrogen isotopes,
- an ELGA PURELAB Chorus 2 Type II laboratory water system,
- an A&D microanalytical balance with five-digit precision,
- CHRIST Alpha 1-2 LDplus freeze dryer,
- freezers, fume hoods, thermoblocks, and supporting laboratory equipment.

Histology Laboratory

The Histology Laboratory supports the preparation and microscopic analysis of samples, enabling the investigation of bone microstructure, bone remodeling, and pathological or developmental changes. It is equipped with:

- a low-speed microtome,
- a grinding and polishing system,
- a vacuum chamber,
- a high-temperature furnace,
- a fume hood,
- optical, transmitted, and polarized light microscopes.

Imaging and 3D Digitization Laboratory

The 3D Laboratory supports the digital documentation and non-destructive analysis of human skeletal remains and other objects of research interest. It includes:

- a Neoscan m-CT NXL micro-CT scanner for objects up to 50 cm.
- Artec Spider I 3D scanner for large objects,
- an Artec Micro II 3D micro-scanner for small objects,

Osteology Laboratory

The Osteology Laboratory features a specially designed space and essential equipment for the macroscopic examination, documentation, and metric analysis of human skeletal remains. It supports:

- the documentation and inventory of osteological collections,
- assessment of the state of preservation,
- the compilation of biological profiles,
- recording of paleopathological lesions,
- osteometric analysis,
- the safe storage and management of collections.

The infrastructure and research activities of the Laboratory of Biological Anthropology provide the Master's program with a strong scientific foundation, linking distance learning with laboratory applications, digital educational materials, research projects, and opportunities to write Master's theses.

2.3 Institute of Evolutionary Medicine, University of Zurich

The Institute of Evolutionary Medicine (IEM) at the University of Zurich (UZH) is the international academic partner of the Master's program "Evolutionary Medicine." The Institute conducts interdisciplinary research to understand human health and disease through the evolutionary history of humankind, combining scientific approaches from medicine, biological anthropology, paleopathology, paleogenetics and paleoproteomics, history, epidemiology, human morphology, imaging, and the One Health approach.

The IEM's scientific approach focuses on investigating how the evolutionary origins of disease contribute to understanding contemporary and future health challenges, as well as how clinical medicine can utilize evolutionary interpretive frameworks. At the same time, the study of historical human remains, mummified tissues, and medical collections allows for the investigation of disease evolution, human morphology, and care and treatment practices from a diachronic perspective.

The research groups and scientific units of the IEM include:

- Evolutionary Pathophysiology and Studies of Mummified Remains
- Human Ecology,
- Evolutionary Morphology,
- Anthropometry and Historical Epidemiology,
- Clinical Evolutionary Medicine,

- Paleogenetics,
- One Health and Microbiome Evolution Laboratory,
- Medical Collections and Collections of Human Remains.

Research and Laboratory Infrastructure

The IEM has specialized facilities that support imaging, biomolecular research, anthropometric studies, collection studies, and laboratory analysis of human remains and historical samples.

Imaging Infrastructure

The Institute's imaging infrastructure supports the non-destructive study of human remains, bones, mummified tissues, and other objects of medical or anthropological interest. It includes:

- portable X-ray systems and digital detectors,
- an internally designed portable computed tomography system,
- a micro-CT scanner,
- a high-resolution breast CT scanner,
- ultrasound bone densitometer,
- 3D scanning capabilities.

Laboratory of Anthropometry and 3D Full-Body Scanning

The Anthropometry and 3D Whole-Body Scanning Laboratory supports the study of human morphology, physical diversity, and changes in the human body in historical and contemporary contexts. Its capabilities are linked to the investigation of human adaptation, morphological diversity, historical epidemiology, and the relationships between human biology and health.

Ancient DNA and Paleoproteomics Laboratory

The Ancient DNA Laboratory, established in collaboration with the Swiss National Science Foundation in 2010, supports the extraction and analysis of ancient DNA from historical samples, such as bones, mummified tissues, and coprolites. The facility is designed to minimize the risk of contamination through controlled access and specialized environmental conditions.

In conjunction with the Paleoproteomics Laboratory, these facilities enable the study of ancient biomolecules and contribute to the investigation of human evolution, diet, pathogens, the co-evolution of humans and microbes, and changes in health over time.

Collections and Specialized Laboratories

The Museums and Collections Unit manages and studies historical medical artifacts and human remains, such as bones, skeletal sets, and mummified or other soft tissues. Its facilities and collections include:

- the Medical Collection,
- the Human Remains Collection,
- the Museum of Wax Figures,
- a storage area for dry specimens,
- the Clinical Anatomy and Skills Laboratory.

The IEM's collections and laboratory facilities provide an important scientific framework for the study of disease, treatment, human morphology, and medical practices from a historical perspective.

IEM's Contribution to the Master's Program

The Institute of Evolutionary Medicine's participation in the Master's Program reinforces the program's international and research-oriented character, providing specialized scientific expertise in areas related to clinical evolutionary medicine, human ecology, evolutionary morphology, paleopathology, ancient DNA, pathogen evolution, historical epidemiology, and the study of human remains and medical collections.

In particular, the collaboration with the IEM contributes to:

- to the provision of specialized instruction by scientists with an international research presence,
- to the enhancement of courses related to evolutionary medicine, human evolution, paleopathology, ancient DNA, human adaptation, and public health,
- developing international academic and research collaborations,
- providing scientific support for Master's theses,
- linking theoretical approaches with modern analytical, imaging, and biomolecular applications.

Through the collaboration between Democritus University of Thrace and the University of Zurich, the Master's program creates an international educational and research environment, linking biological anthropology, the study of health and disease in the past, and contemporary biomedical approaches with the fundamental principles of evolutionary medicine.

PART B

ORGANIZATION AND OPERATION OF THE MASTER'S PROGRAM

MS: Evolutionary Medicine

3. Issues regarding the organization and operation of the MSc program

3.1 General Information

Program Title	Evolutionary Medicine
Program Type	International Master's Program
Degree-Granting Institution	Democritus University of Thrace
Partner Institution	Institute of Evolutionary Medicine, University of Zurich
Level of study	Master's degree - Level 7
Duration	Three (3) academic semesters
Credits	Ninety (90) ECTS
Language	English
Delivery	100% online
Tuition	4,500.00 euros, payable in two equal installments
Number of students admitted	Up to eighty (80) per cycle—minimum of twenty (20)
Start date	Academic year 2027–2028

3.2 Subject Matter, Purpose, and Learning Outcomes

The subject of the MSc program is graduate-level education in the evolutionary approach to human health and disease. The program examines the interaction of biological evolution, pathogens, the environment, cultural practices, and contemporary patterns of morbidity, utilizing interdisciplinary methods from medicine, biological anthropology, bioarchaeology, genetics, historical epidemiology, and public health.

The aim of the program is to train scientists capable of applying evolutionary principles to the interpretation of complex biomedical issues, using modern analytical tools and developing evidence-based research approaches.

Upon completion of the Program, graduates will be able to:

- understand and apply the principles of evolutionary medicine to the interpretation of human health and disease.
- analyze the relationships between biological evolution, the environment, cultural practices, and morbidity.
- evaluate issues of human adaptation, host-pathogen co-evolution, and genetic diversity.
- use research and analytical methods from evolutionary medicine, biological anthropology, bioarchaeology, and genetics.
- communicate scientific findings clearly and with academic rigor in English.
- conduct independent research in accordance with the principles of scientific methodology and academic ethics.

3.3 Program Structure and ECTS

The MSc program includes eight (8) required courses, distributed over the first two semesters, and a Master's Thesis (MT) in the third semester. Each course corresponds to 7.5 ECTS credits and includes thirty-nine (39) hours of synchronous distance learning. The MTh corresponds to 30 ECTS credits.

3.4 Master's Degree

The MSc program awards a Master's Degree (MSc) titled "Evolutionary Medicine." The degree is awarded by Democritus University of Thrace, as part of the joint program organized in collaboration with the Institute of Evolutionary Medicine at the University of Zurich.

3.5 Administrative Bodies

The administrative and operational bodies of the M.Sc. program are the Senate of the Democritus University of Thrace, the Curriculum Committee (CC), the Coordinating Committee (CC), and the Director of the M.Sc. program.

- The Senate of the Democritus University of Thrace appoints the CSP and decides on matters regarding the extension or suspension of the program's operation, in accordance with the applicable institutional framework.
- The Program Committee is responsible for the organization, administration, and academic management of the Master's Program, the approval of admitted students, the assignment of teaching duties, the appointment of supervisors and examination committees for Master's theses, and the approval of program completion.
- The Steering Committee monitors and coordinates the operation of the Program, makes recommendations on teaching and quality improvement, and prepares the necessary financial and academic proposals.

- The Director chairs the relevant bodies, monitors the implementation of their decisions, and performs the duties of academic coordination for the Master's Program.

3.6 Administrative Support and Website

Administrative support is provided by the Department of Humanities at the Democritus University of Thrace. The official website of the M.A. program serves as the primary medium for publishing calls for applications, announcements, regulations, and information for students.

3.7 Faculty and Research Associates

The following list reflects the academic staff included in the submitted supporting documents. The final assignment of instructors to courses will be reflected in the approved annual teaching schedule.

Full Name	Institution	Field of Study
Christina Papageorgopoulou	DUTH	Biological Anthropology, Paleogenetics
Ioanna Maroulakou	DUTH	Genetics, epigenetics
Konstantinos Zafeiris	Democritus University of Thrace	Demography, paleodemography
Elissavet Ganiatsou	Democritus University of Thrace	Biological Anthropology, Paleodiet
Asterios Aidonis	Democritus University of Thrace	Biological Anthropology, Paleodemography
Niki Papavramidou	AUTH	History of Medicine
Konstantinos Moraitis	National and Kapodistrian University of Athens	Forensic Anthropology
Konstantinos Tsiamis	University of Thessaly	History of Public Health
Fotios Alexandros Karakostis	University of Tübingen	Human Evolution, Biomechanics, Bioarchaeology
Frank Rühli	UZH	Evolutionary pathophysiology and the study of mummified remains
Adrian Jäggi	UZH	Human Ecology

Full Name	Institution	Field of Study
Nicole Bender	UZH	Clinical Evolutionary Medicine
Kaspar Staub	UZH	Anthropometry and Historical Epidemiology
Patrick Eppenberger	UZH	Evolutionary pathophysiology and the study of mummified remains
Martin Häusler	UZH	Evolutionary morphology
Charlotte Avanzi	UZH	One Health
Verena J. Schünemann	UZH / University of Basel	Paleogenetics
Sabina Carraro	UZH	Medical Collections and Human Remains Collections

3.8 Language of Instruction

The language of instruction, assessment, coursework, and the Master's Thesis is English. Applicants must demonstrate proficiency in English at a minimum B2 level or provide proof of completion of studies in an English-language program.

3.9 Admission Criteria

Admission to the Master's program is open to holders of a bachelor's degree awarded by a domestic higher education institution or a recognized equivalent foreign institution. For foreign degrees, the required verification of the relevant DOATAP registries applies.

Students must have a computer with a camera and microphone, speakers or headphones, and a reliable internet connection.

3.10 Admission Selection Process and Registration

Admission to the M.Sc. program takes place following a call for applications, which is published on the Program's official website and specifies the deadlines, submission method, required supporting documents, and technical requirements for participation.

The application package must include, at a minimum:

- an electronic application form,
- a resume,

- a bachelor's degree or a certificate of completion of studies and a detailed transcript,
- a copy of an ID card or passport,
- certificate of English language proficiency at a minimum level of B2 or equivalent documentation,
- two (2) letters of recommendation,
- a letter of interest,
- publications, evidence of scientific activity or additional qualifications, where applicable.

The selection process consists of four stages:

1. Stage 1: submission and verification of application completeness.
2. Stage 2: evaluation of the application file, with a maximum score of forty (40) points.
3. Stage 3: Interview by a three-member Admissions Committee, with a maximum score of sixty (60) points.
4. Stage 4: preparation of ranking lists, submission of appeals, validation of the final results by the Admissions Committee, and completion of registration.

Admitted candidates must accept their enrollment and the terms of the M.Sc. program in writing within five (5) business days of being notified. Any vacant positions will be filled from the waiting list in order of ranking.

Note: The detailed weighting of the individual evaluation criteria for the application will be specified in the call for applications following its final alignment with the Master's Program Regulations.

3.11 Methods and means of conducting the distance learning process

The educational process of the MSc program "Evolutionary Medicine" is conducted entirely online and is supported by the integrated e-learning system of Democritus University of Thrace. The system combines two complementary digital environments: Microsoft Teams for synchronous distance learning and Open eClass for asynchronous support of the learning process. Both environments are supported in Greek and English, ensuring functional support for the English-language nature of the MSc program.

3.11.1 Open eClass: asynchronous support for the learning process

Open eClass is an Online Course Management System, installed on the infrastructure of the Democritus University of Thrace and developed by the GUnet Academic Network. Within the framework of the Master's Program, it serves as the primary environment for asynchronous course support and enables the organized delivery of educational content, communication, and submission of educational activities.

Through the platform, students have access to:

- notes, presentations, scientific articles, multimedia materials, and other educational resources,
- to announcements and instructions from instructors,
- to written assignments, exercises, tests, and quizzes,
- to communication and collaboration tools within the context of the courses,
- organized learning paths and digital content that may support international interoperability and reusability standards, such as SCORM and IMS CP.

The platform also supports the use of Turnitin to check the originality of written assignments and the Master's Thesis, in accordance with the academic requirements and established procedures of the Program.

3.11.2 Microsoft Teams: Modern Distance Learning

Microsoft Teams, which is available through the University of Thrace's Microsoft 365 environment, is the primary tool for conducting synchronous instruction in the Master's Program. It is used to organize online lectures and educational meetings in real time, without requiring students to be physically present in a specific location.

Microsoft Teams supports:

- conducting live online lectures and virtual classes with video and audio communication,
- screen sharing, file sharing, and presentations via PowerPoint Live,
- the use of a digital whiteboard for collaborative activities,
- student participation through chat, reactions, and a hand-raising feature,
- collaboration in smaller groups, where required by the learning activity,
- connecting via a computer application, web browser, or mobile device.

The recording or transcription of online sessions is subject to the Institution's personal data protection and privacy policies, as well as the available system settings. Where such functions are not permitted by institutional policy, they are not enabled for Program users.

3.11.3 Accessibility and Inclusive Participation

The integrated e-learning system of the Democritus University of Thrace supports the participation of students with disabilities or special educational needs. The Open eClass interface is compatible with accessibility standards, while full course accessibility also depends on the appropriate formatting of the educational materials uploaded by instructors.

For this reason, the program promotes the use of accessible digital documents and resources, such as properly structured PDF files, alternative text for images and diagrams, and captioned audiovisual material, where feasible and necessary.

Microsoft Teams provides accessibility features such as live captions, support for screen readers and keyboard shortcuts, high-contrast and zoom settings, as well as a dedicated view for sign language users and interpreters.

3.11.4 Access and technical requirements for participation

Students access the e-learning platforms using their institutional credentials. To effectively participate in the M.A. program courses, students must have:

- a computer with a camera and microphone,
- speakers or headphones,
- a reliable internet connection,
- the Microsoft Teams app or a supported web browser,
- basic proficiency in using the digital tools required for attending classes and submitting assignments.

To use Microsoft Teams, it is recommended to install the desktop application; indicative minimum technical requirements include at least 4 GB of RAM and a screen resolution of at least 1024 × 768.

3.11.5 Organizational and Technical Support

For the operation of the M.Sc. program, a Manager of the integrated e-learning system is appointed, whose contact information is provided in a timely manner to instructors and students.

Support is provided at two levels:

At the level of the Master's Program and the Department, guidance and assistance are provided on issues related to accessing courses, using Open eClass, participating in online lectures via Microsoft Teams, submitting assignments, and troubleshooting common usage issues.

At the level of the central services of the Democritus University of Thrace, the Digital Governance Unit is responsible for maintaining, upgrading, securing, and ensuring the availability of digital systems, managing backups of the Open eClass platform, and integrating with the Microsoft 365 and Microsoft Teams environments.

The combined use of digital platforms, accessibility services, and technical support mechanisms ensures the smooth, consistent, and academically sound implementation of the distance learning process for the Master's program.

3.12 Student-centered learning and academic support

The educational philosophy of the M.Sc. program is based on student-centered learning and the active engagement of students in the process of producing and critically evaluating knowledge. Distance learning is not limited to attending lectures but is organized to support interaction, guided discussion, and independent research.

Indicative educational practices include:

- critical analysis of contemporary scientific publications,
- case studies in evolutionary medicine, bioarchaeology, and public health,
- presentations of student projects and scientific dialogue,
- application of analytical tools to research questions,
- guidance on the development of the Master's Thesis,
- use of digital materials, electronic resources, and communication and learning platforms.

3.13 Quality assurance and evaluation of educational work

The MSc program is integrated into the quality assurance procedures of the Democritus University of Thrace and is evaluated in accordance with the current institutional and regulatory framework. Monitoring of its quality is based on documented procedures and data concerning educational operations, the achievement of learning outcomes, student participation, and the academic relevance of the curriculum.

The evaluation of teaching is conducted through the established procedures of the University of Thrace's Internal Quality Assurance Unit (MODIP). Its results, together with student feedback, faculty suggestions, academic developments, and any recommendations from external evaluation or accreditation, are utilized for the continuous improvement of the Master's Program.

3.14 Public Information

The official website of the M.Sc. program serves as the primary channel for public information in English. It features, as applicable, the program's mission and objectives, the Study Guide and Regulations, the curriculum and course descriptions, admission requirements, tuition fees and exemption options, the academic calendar, faculty profiles, and information on available student support services.

3.15 Tuition Fees and Payment Method

The total tuition fee for the entire duration of the MSc program is four thousand five hundred euros (€4,500). Payment is made in two equal installments:

- First installment: €2,250, upon enrollment in the program.
- Second installment: €2,250, upon registration for the second semester of study.

Tuition fees are paid into the Special Research Funds Account (SARF) of the Democritus University of Thrace, in accordance with the instructions provided to enrolled students.

4. Coursework

4.1 Duration of Studies

The standard duration of study in the Master's program is three (3) academic semesters. In the first two semesters, students complete eight (8) required courses, totaling sixty (60) ECTS credits. In the third semester, they prepare a Master's Thesis (MT), worth thirty (30) ECTS credits.

4.2 Maximum Duration of Studies and Exceptional Extension

Master's students must complete their studies within six (6) academic semesters, that is, within twice the standard duration of the Master's program. In exceptional cases, an extension may be approved for serious health reasons concerning the student or a person specified in the Regulations, following a documented request and a decision by the competent body.

4.3 Suspension of Studies

In exceptional cases, a temporary suspension of studies may be approved upon a duly justified request. The suspension period may not exceed two (2) consecutive academic semesters. During the suspension, the student does not retain student status, and the semesters of suspension are not counted toward the maximum permitted duration of studies.

4.4 Course Attendance and Student Evaluation

Course attendance is mandatory. Each course consists of thirteen (13) synchronous distance learning lectures, totaling thirty-nine (39) instructional hours. Up to three (3) absences per course are permitted. If this limit is exceeded for serious, documented reasons, the student may submit a request, which is reviewed in accordance with the Regulations.

For the eight required courses, assessment is conducted in English and includes:

- a final written exam: 60% of the final grade,
- individual written assignment: 40% of the final grade.

The specific requirements, assessment criteria, and deadlines are announced at the start of each course through the official digital platforms of the Master's Program.

4.5 Master's Thesis

The Master's Thesis (MT) is completed in the third semester, corresponds to thirty (30) ECTS credits, and is written in English. Its topic must fall within the field of study of the M.Sc. program and utilize the knowledge, abilities, and skills acquired during the course of study.

4.5.1 Requirements and Topic Approval

A prerequisite for beginning the Master's Thesis is the successful completion of the courses in the first and second semesters. The student submits an application to the Secretariat, which includes the proposed title, the proposed supervisor, a summary of the proposed research, the methodological approach, and a suggested bibliography. The EPS approves the topic, appoints the supervisor, and forms the three-member examination committee.

4.5.2 Preparation and Academic Supervision

The MSc thesis is prepared under remote academic supervision and regular guidance from the supervisor. Progress on the thesis is monitored throughout the semester, in accordance with academic requirements and the approved research proposal.

4.5.3 Structure and Technical Specifications

The MSc thesis is submitted in editable format and in final digital format (PDF), on A4 pages, using Times New Roman or Arial font, size 12 for the main text and 10 for footnotes, 1.5 line spacing, full justification, continuous page numbering, and 2.5 cm margins. Bibliographic citations follow the APA style, unless otherwise specified for a specific category of work.

The paper must include, at a minimum, a cover page, title page, abstract in English, keywords, a table of contents, an introduction, a theoretical and bibliographic framework, methodology, presentation and analysis of results or a documented synthetic analysis, discussion, conclusions, and a bibliography. Where required, appendices, tables, figures, or other supporting material are included.

4.5.4 Plagiarism check, presentation, and final submission

Prior to evaluation, the MTh is subjected to an originality check using the approved Turnitin software. The student submits a sworn statement that the thesis is the product of their own work and does not constitute plagiarism, in whole or in part.

The Master's Thesis is evaluated based on the final written text and the public oral defense before a three-member examination committee. Grades are assigned on a scale from zero (0) to ten (10), with a passing grade ranging from six (6) to ten (10). Upon approval, the final complete copy is submitted electronically to the Library of the Democritus University of Thrace and to the Department's archives, in accordance with current guidelines.

4.6 Completion of Studies and Award of the MSc.

The award of the Master's Degree requires the successful completion of eight (8) courses, the successful preparation and defense of the Master's Thesis, the accumulation of ninety (90) ECTS credits, and the resolution of any outstanding financial or administrative matters.

The final grade for the MSc program is calculated as a weighted average of the course grades and the MSc thesis, based on the corresponding ECTS credits.

4.7 Rights and obligations of students

Graduate students have the right to access the digital and administrative services of the University of Thrace, the libraries, and electronic academic resources, as well as the opportunity to use research infrastructure and equipment, subject to the required approval. They may also participate in research activities and mobility programs, provided the relevant requirements are met.

Students are required to attend classes regularly, submit their assignments on time, take exams, adhere to the principles of academic integrity, pay tuition fees on time, and comply with the regulations of the M.Sc. program and the Democritus University of Thrace.

4.8 Dismissal of Students

The dismissal of a graduate student may be decided in cases of insufficient academic progress, failure to participate in the educational process or in exams, exceeding the maximum duration of study, failure to fulfill obligations, violation of academic ethics, or upon the student's own written request, in accordance with the Regulations.

4.9 Scholarships and Academic Excellence Awards

By decision of the Academic Council, awards for academic excellence may be granted based on objective criteria, such as completion of studies within the prescribed duration, grade point average, first-degree grade, and other academic achievements or distinctions. The process is conducted based on a relevant call for applications.

4.10 Academic Integrity and the Use of Artificial Intelligence Tools

Students must adhere to the principles of academic integrity in all assignments and in their Master's Thesis. Plagiarism, falsification of data, or any other form of academic misconduct may result in sanctions in accordance with the applicable institutional framework and the Master's Program Regulations.

The use of Artificial Intelligence tools is permitted only in accordance with the instructions of the instructor or supervisor and with an explicit statement of the instances in which they were utilized

during the preparation of the submitted assignment. Their use does not replace the student's personal academic work, documentation, and responsibility for the content submitted.

4.11 Mobility Issues

Graduate students may take advantage of Erasmus+ opportunities or other forms of academic mobility, provided they are available, compatible with the nature of the graduate program, and approved by the relevant bodies. The requirements and deadlines are published in the relevant announcements.

4.12 Academic Advisor System

The Academic Advisor system aims to support graduate students throughout their studies regarding enrollment, distance learning, academic planning, and referrals to the relevant services.

The implementation of this system within the Master's Program and the definition of the relevant procedures will be carried out in accordance with the current institutional framework and the decisions of the competent bodies of the Democritus University of Thrace.

5. Academic Calendar for the 2027–2028 Academic Year

The detailed academic calendar is approved and announced prior to the start of the academic year. The exact dates will be included in the final version of the Guide.

Period	Activity
First Semester	13 weeks of instruction and exams
Second semester	13 weeks of instruction and exams
Third semester	Master's thesis preparation and defense
Holidays / breaks	According to the DUTH calendar

8. Quality Policy of the M.Sc. Program "Evolutionary Medicine"

The Department of Humanities at Democritus University of Thrace, in collaboration with the University's Quality Assurance Unit (MODIP), the relevant administrative bodies of the University of Thrace, and the Institute of Evolutionary Medicine at the University of Zurich, implements a Quality Policy for the Joint Master's Program "Evolutionary Medicine," which is aligned with the University of Thessaly's Quality Policy and Internal Quality Assurance System.

The program is part of the University of Thrace's strategic plan to develop international, innovative, and research-oriented graduate programs. It responds to contemporary scientific, educational, and

social needs by providing specialized training in the evolutionary approach to human health and disease. Its operation is based on the interdisciplinary connection of evolutionary medicine with biological anthropology, bioarchaeology, paleopathology, paleogenetics, human adaptation, historical epidemiology, public health, and the cultural dimensions of health and care.

The program is delivered entirely through distance learning methods, utilizing synchronous online instruction and asynchronous digital support. Its Quality Policy aims to ensure its academic integrity, achieve learning outcomes, provide effective student support, link teaching with research, and continuously improve all aspects of the Program.

Design and Continuous Improvement of the Curriculum

The Master's Program ensures that its curriculum is scientifically grounded, coherent, and oriented toward contemporary developments in the field of evolutionary medicine. Specifically:

- it designs, reviews, and updates course content through transparent academic processes,
- takes into account developments in research, biomedical science, biological anthropology, public health, and relevant professional and social needs,
- defines clear learning outcomes for the Program and for each individual course,
- ensures that the learning outcomes correspond to the level of graduate studies and are aligned with the European Qualifications Framework,
- fosters critical thinking, research skills, scientific documentation, and interdisciplinary synthesis,
- provides students with a comprehensive understanding of the relationships between human evolution, biological diversity, adaptation, disease, pathogens, the environment, lifestyle, historical experience, and cultural practices.

Quality Assurance in Teaching and Distance Learning

The quality of the educational process is a central priority of the M.Sc. program. To this end, the program:

- entrusts teaching duties to scholars with proven expertise in the program's subject areas and experience in contemporary forms of academic instruction,
- leverages the international academic resources of the University of Zurich, enhancing the international dimension and the research quality of instruction,

- applies student-centered learning methods, encouraging participation, discussion, critical reading of the literature, analysis of case studies, and the preparation of research papers,
- utilizes modern digital tools and platforms for course delivery, communication, distribution of educational materials, assignment submission, and assessment,
- uses Microsoft Teams for synchronous remote teaching and Open eClass for asynchronous course support,
- implements plagiarism detection tools, such as Turnitin, to promote academic integrity,
- systematically monitors student progress and provides academic and pedagogical support throughout the duration of their studies,
- evaluates teaching performance through student feedback and the procedures implemented by the University of Thrace's Internal Quality Assurance Unit (MODIP).

Accessibility, Inclusion, and Student Support

The Master's Program ensures that the distance learning process is accessible, inclusive, and functional for all students. In this context:

- it ensures students' access to digital platforms, electronic libraries, databases, and educational materials,
- promotes the use of accessible digital documents and educational resources,
- leverages the accessibility features of digital platforms, such as captions, assistive technologies, and visual access settings,
- provides academic guidance through the Academic Advisor program,
- organizes informational welcome and orientation activities for new graduate students,
- ensures that students are informed about their rights and obligations, available support services, complaint and appeal procedures, and the principles of academic integrity,
- fosters an academic environment of respect, cooperation, transparency, and equal treatment.

Linking Teaching and Research

The research dimension is an integral part of the program's identity. The Program aims to systematically link teaching with the generation of new knowledge, leveraging the research capabilities of the Laboratory of Biological Anthropology at the Democritus University of Thrace and the Institute of Evolutionary Medicine at the University of Zurich.

Specifically, the M.A. program:

- incorporates contemporary research approaches and the results of international scientific studies into its courses,
- familiarizes students with applications of stable isotopes, histology, imaging, osteological analysis, ancient DNA, paleopathology, and research data management,
- links instruction to topics in human ecology, evolutionary morphology, clinical evolutionary medicine, historical epidemiology, paleogenetics, and the One Health approach,
- approaches human health and disease in relation to biological, environmental, historical, social, and cultural factors,
- encourages student participation in scientific activities, conferences, workshops, and research presentations,
- supports the completion of Master's theses with a clear research focus,
- promotes collaborations with academic and research institutions in Greece and abroad,
- enhances academic mobility and international networking among students and faculty.

Academic development and support for faculty

The M.Sc. program recognizes that the quality of the program is directly linked to the academic competence and continuous development of the teaching staff. For this reason:

- it supports faculty participation in academic networks, conferences, and research projects,
- it promotes the exchange of expertise between the Democritus University of Thrace and the University of Zurich,
- encourages the integration of contemporary research findings and new educational practices into teaching,
- seeks the continuous improvement of academic staff's digital skills and distance learning methods.

Employability and academic prospects of graduates

The M.A. program ensures that the curriculum remains relevant to the contemporary scientific and professional prospects of its graduates. The interdisciplinary education it provides can be applied in fields such as:

- academic research and continued studies at the doctoral level,
- biomedical and evolutionary research,
- biological anthropology, bioarchaeology and paleopathology,
- paleogenetics and the study of ancient biomolecules,
- human ecology and the study of the relationships between the environment, cultural practices, and health,
- public health and historical epidemiology,
- laboratory and museum applications involving human remains and collections,
- scientific communication and research data management.

The number of admitted students is determined based on available faculty, digital and research infrastructure, and academic and administrative support capabilities, to ensure the quality of the distance learning graduate program.

Transparency, Public Information, and Continuous Improvement

The M.A. program is committed to transparency in its operations and the systematic publication of reliable and up-to-date information. The program's official website serves as the primary source of information for interested parties, applicants, and enrolled students.

The following are or will be published on the Master's Program website:

- the identity, scope, and objectives of the Program,
- the Quality Policy,
- the Study Guide and the Operating Regulations,
- the curriculum and course descriptions,
- the admission, evaluation, and graduation procedures,
- information on tuition fees and merit-based awards
- the academic calendar and related announcements,
- details of the teaching staff and partner academic institutions,
- support services and procedures for handling complaints and appeals.

The Quality Policy is reviewed on a regular basis, taking into account the results of teaching evaluations, student feedback, suggestions from faculty and administrative bodies, scientific developments, as well as the findings of internal and external evaluation and accreditation processes.

Through the implementation of the Quality Policy, the Master's Program in "Evolutionary Medicine" seeks to ensure high-quality graduate education, international academic collaboration, the integration of teaching with research, effective student support, and the continuous improvement of its educational and scientific operations.

PART C

CURRICULUM AND COURSE DESCRIPTIONS

MS: Evolutionary Medicine

9. Curriculum and Detailed Course Descriptions

9.1 Curriculum

Code	Course Title	Semester	Type	ECTS
EM1	Introduction to Evolutionary Medicine	A	Required	7.5
EM2	Human Evolution and Skeletal Adaptation	A	Required	7.5
EM3	Bioarchaeology of Health and Disease	A	Required	7.5
EM4	Methods in Research & Data Management	A	Required	7.5
EM5	Human Adaptation and Mismatches in Modern Health	B	Required	7.5
EM6	Advances in Ancient DNA	B	Required	7.5
EM7	Evolution of Medicine	B	Required	7.5
EM8	Evolutionary and Cultural Perspectives in Global Healthcare	B	Required	7.5
EM9	Master's Thesis	C	M.T.	30
			TOTAL	90

9.2 Detailed descriptions of courses offered

EM1 - Introduction to Evolutionary Medicine

Introduction to Evolutionary Medicine

Code	EM1
Coordinator:	Adrian Jäggi email: adrian.jaeggi@iem.uzh.ch
Semester	1st
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course introduces students to the basic theoretical principles and central concepts of evolutionary medicine, as a scientific field that links biological evolution with the study of human health and disease. It examines natural selection, adaptation, evolutionary trade-offs, the mismatch between evolutionarily shaped traits and modern living conditions, as well as the importance of the evolutionary approach in interpreting chronic and infectious diseases. The aim of the course is to familiarize students with the conceptual and epistemological foundations of the field and to develop their ability to apply evolutionary interpretations to biomedical phenomena.

Learning Outcomes

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

- interpret basic concepts of evolutionary theory in the context of health and disease.
- recognize evolutionary trade-offs and mismatches in modern diseases.
- relate evolutionary theory to biomedical examples.

Course Modules

1. Introduction to the course: what is evolutionary medicine.
2. Evolutionary theory, adaptation and natural selection, micro- and macroevolution.
3. Development, life history, and adaptive plasticity.
4. Human evolution and human variation.
5. Cancer from an evolutionary perspective / Cancer in evolutionary perspective.
6. Reproduction and the obstetric dilemma.
7. Immune system and host-pathogen co-evolution.
8. Ancient pathogens and historical epidemics.
9. Paleopathology I: Introduction to the Field, Soft Tissue Pathologies.
10. Paleopathology II: musculoskeletal disorders.
11. Stature, nutrition, and metabolism: the human diet, obesity, and metabolic diseases.
12. Evolutionary psychiatry and mental health.
13. Recapitulation and final discussion.

Suggested reading and educational materials

The core and supplementary bibliography, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the graduate program's digital platform.

EM2 - Human Evolution and Skeletal Adaptation

Human Evolution and Skeletal Adaptation

Code	EM2
Coordinator:	Martin Häusler email: martin.haeusler@iem.uzh.ch
Semester	1
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course examines human evolution through the study of the morphological and functional adaptation of the skeleton. It presents the evolutionary roots of humans, the diversity of early hominids, the evolution of bipedal locomotion, the emergence of the genus Homo, and the global diversity of Homo sapiens. At the same time, emphasis is placed on the relationship between skeletal morphology, the environment, biomechanics, mobility, activity, and modern musculoskeletal problems. The course also examines evolutionary interpretations of topics such as back pain, the obstetric dilemma, osteoporosis, sedentary lifestyles, flat feet, and dental crowding. The course aims to foster an understanding of skeletal adaptation as a biological response to evolutionary, environmental, and mechanical factors, and to utilize the evolutionary approach to interpret contemporary human health.

Learning Outcomes

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

- describe key stages of human evolution and skeletal adaptation.
- evaluate the relationship between morphology, mechanical loading, and the environment.
- interpret contemporary musculoskeletal problems from an evolutionary perspective.

Course Modules

1. Evolution of non-human primates.

2. Earliest hominins.

3. Evolution of bipedalism.

4. Phylogeny, taxonomy, dating techniques, and late hominins.

5. Early hominin diversity and adaptive landscapes.

6. The genus Homo and Homo sapiens: global variability.

7. Neanderthals, Denisovans, and anatomically modern humans.

8. Skeletal plasticity under environmental and mechanical stress. Climatic adaptation and ecogeographic skeletal patterns.

9. Activity, mobility, and biomechanics. Bone degeneration and longevity: osteoporosis in postmenopausal and post-reproductive life. Sedentary lifestyles and musculoskeletal dysfunction / Activity, mobility, and biomechanics of physical activity. Bone degeneration and longevity: osteoporosis in post-reproductive life.

10. Low back pain in an evolutionary perspective.

11. Flattened arches and modern locomotion: flat feet as a biomechanical mismatch.

12. Masticatory evolution and dental crowding: the case of wisdom teeth.

13. Recapitulation and final discussion

Suggested reading and educational materials

The primary and supplementary bibliography, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the graduate program's digital platform.

EM3 - Bioarchaeology of Health and Disease

Bioarchaeology of Health and Disease

Code	EM3
Coordinator:	Patrick Eppenberger email: patrick.eppenberger@iem.uzh.ch
Semester	1st
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course examines the bioarchaeological approach to health and disease through the study of human skeletal and mummified remains from historical and archaeological populations. It focuses on the basic principles of paleopathology, methods for identifying pathological changes, the contribution of imaging technology, histology, and the analysis of adult and juvenile skeletons, as well as the study of dentition, bone microstructure, and bone remodeling. At the same time, the course addresses issues of reproductive strategies, parental investment, developmental stress, demographic patterns, trauma, infectious diseases, degenerative changes, occupational stress, and congenital or developmental disorders. The course aims to help students understand how biological remains from the past can be used to reconstruct patterns of health, disease, violence, care, daily life, and biosocial experience.

Learning Outcomes

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

- identify categories of pathological changes in human remains.
- combine osteological, histological, and imaging approaches.
- reconstruct biosocial dimensions of health in past populations.

Course Modules

1. Introduction to Paleopathology.
2. Imaging technologies in paleopathology.
3. The adult skeleton and histology.
4. Mummy studies.
5. The juvenile skeleton.
6. The human dentition.
7. Evolutionary patterns of bone microstructure and remodeling.
8. Parental investment: breastfeeding and weaning patterns.
9. Biocultural perspectives on developmental stress and health in past populations.
10. Human demographic patterns in historical and contemporary populations.
11. Trauma: violence, accidents, and warfare across historical periods.
12. Infectious diseases in antiquity and their skeletal signatures.
13. Degenerative changes, occupation, and daily life in historical populations.
14. Developmental and congenital conditions in historical populations.

Suggested reading and educational materials

The core and supplementary bibliography, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the program's digital platform.

EM4 – Research Methodology and Data Management

Methods in Research & Data Management

Code	EM4
Coordinators:	Elissavet Ganiatsou email: egkaniat@he.duth.gr Asterios Aidonis email: asaidoni@he.duth.gr
Semester	1
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course introduces students to the basic principles of scientific design, research methodology, and proper data management in the context of anthropological and interdisciplinary research. It examines quantitative and qualitative methods, sampling design, measurement and sources of bias, quality control and data standardization, as well as the FAIR principles. Basic statistical methods, descriptive and inferential statistics, tests for comparing groups, regression, multivariate analysis, and control of confounding factors are presented. The course also introduces applications of artificial intelligence and machine learning, as well as the basic digital tools used in anthropological research. The course aims to develop methodological skills, foster an understanding of reliable data production and interpretation, and familiarize students with the principles of open science, reproducibility, and scientific integrity.

Learning Outcomes

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

- design research protocols and evaluate sources of bias.
- apply basic principles of statistical analysis and data management.
- adopt FAIR practices, reproducibility, and scientific integrity.

Course Modules

1. Principles of scientific research
2. Quantitative and qualitative methods
3. Sampling design, measurement, and sources of bias
4. Data quality control and standardization
5. Data management principles and FAIR standards
6. Descriptive statistics and exploratory data analysis
7. Inferential statistics: estimation, confidence intervals, and hypothesis testing
8. Statistical tests for group comparison
9. Regression modeling
10. Multivariate analysis and control of confounding factors
11. Artificial intelligence and machine learning
12. Digital tools in anthropology
13. Recapitulation and final discussion

Suggested reading and educational materials

The primary and supplementary reading lists, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the graduate program's digital platform.

EM5 - Human Adaptation and Mismatches in Modern Health

Human Adaptation and Mismatches in Modern Health

Code	EM5
Coordinator:	Christina Papageorgopoulou email: cpapage@hs.duth.gr
Semester	2nd
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course examines the processes of human adaptation and the significance of evolutionary mismatches in shaping contemporary models of health and disease. It focuses on short-term and long-term adaptations of human morphology and physiology, evolutionary trade-offs, adaptation to different lifestyles and ecological environments, as well as the relationships between humans, diet, microbes, and the environment. It also examines evolutionary mismatches in physical and mental health, the consequences of lifestyle changes in the modern era, as well as the applications of evolutionary thinking in clinical practice and in understanding athletic ability. The aim of the course is for studentsto understand how evolutionary adaptations and biological constraints influence modern human health and to become familiar with the use of the evolutionary approach in interpretive and applied biomedical contexts.

Learning Outcomes

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

- analyze human adaptations to diverse environments.
- correlate evolutionary mismatches with health patterns.
- evaluate applications of evolutionary medicine to clinical issues.

Course Modules

1. Introduction: short-term adaptations of human morphology and health.
2. Evolutionary trade-offs.
3. Human adaptation to hunter-gatherer lifestyles / Human adaptation to hunter-gatherer lifeways.
4. Human nutrition and body composition.
5. Human-microbe interactions.
6. Past pandemics.
7. Aspects of evolution in human physiology.
8. Adaptation to high altitude.
9. Short-term adaptations throughout history.
10. Mismatch and mental health
11. How evolution shapes our health and athletic abilities.
12. Clinical applications of evolutionary medicine.
13. Recapitulation and final discussion

Suggested reading and educational materials

The core and supplementary bibliography, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the graduate program's digital platform.

EM6 - Advances in ancient DNA

Advances in Ancient DNA

Code	EM6
Coordinator:	Verena Schünemann email: verena.schuenemann@iem.uzh.ch
Semester	2nd
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course introduces students to the study of ancient DNA and ancient biomolecules in general, emphasizing their importance for understanding human evolution, health, nutrition, pathogens, and the interactions between humans, animals, and the environment in the past. The course examines the history of the field, technological developments, next-generation sequencing, the basic principles of ancient DNA analysis, as well as its applications in population genetics, the study of pathogens, nutrition, and the domestication of plants and animals. The aim of the course is to familiarize students with the theoretical, technological, and interpretive framework of ancient DNA studies and to help them understand its contribution to evolutionary medicine and interdisciplinary bioarchaeological research.

Learning Outcomes

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

- describe basic principles of ancient DNA recovery and analysis.
- interpret paleogenetic and pathogen data.
- evaluate the contribution of the One Health approach.

Course Modules

1. Introduction to ancient biomolecules.

2. History of ancient DNA.

3. Ancient DNA and Next Generation Sequencing.

4. Analysis of ancient DNA.

5. Human population genetics and ancient DNA.

6. Human-microbe interactions.

7. Ancient DNA and pathogens

8. Introduction to the One Health approach.

9. The One Health Approach Over Time.

10. Diet and ancient biomolecules.

11. Domestication of animals and plants through ancient DNA.

12. Introduction to gene-culture co-evolution

13. Recapitulation and final discussion.

Suggested reading and educational materials

The core and supplementary bibliography, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the graduate program's digital platform.

EM7 - Evolution of Medicine

Evolution of Medicine

Code	EM7
Coordinator:	Niki Papavramidou email: npapavramidou@auth.gr
Semester	2nd
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course examines the historical development of medical knowledge and practice from classical antiquity to the modern era, with an emphasis on changes in the understanding of the body, disease, treatment, and public health. It analyzes the transition from early forms of medical thought to the development of scientific medicine, historical nosology, epidemics, vaccination, public health, and epidemiology. At the same time, the course examines the relationship between medical knowledge and society, colonial medicine, contemporary pandemics, and future challenges for public health. The course aims to foster an understanding of medicine as a field of knowledge and practice that has evolved historically, as well as to develop the ability to interpret contemporary issues in biomedicine and public health from a historical and evolutionary perspective.

Learning Outcomes

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

- analyze historical changes in medical knowledge and practice.
- interpret epidemics, vaccination, and public health from a historical perspective.
- connect historical experiences with contemporary health challenges.

Course Modules

1. Introduction to the evolution of medicine.

2. Classical Greek and Roman Medicine: From Art to Science.

3. Medical Entities Through Time: Epilepsy, Cancer, Mental Disorders.

4. From Medieval to Renaissance Medicine: Anatomy, Surgery, Remedies.

5. The Birth of Modern Medicine.

6. Fundamentals of Historical Nosology and Disease Ecology.

7. Epidemics: Mechanisms, Transmission, Historical Impact.

8. Medieval and Early Modern Epidemics: Plague, Quarantine, Lazarettos.

9. Colonial Medicine and Global Public Health (18th–20th c.).

10. The History of Vaccination.

11. Public Health Systems: Origins and Evolution.

12. The Rise of Modern Epidemiology and Statistical Medicine.

13. Modern Pandemics and the Future of Public Health.

Suggested reading and educational materials

The primary and supplementary reading lists, academic articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the graduate program's digital platform.

EM8 - Evolutionary and Cultural Approaches to Global Healthcare

Evolutionary and Cultural Perspectives in Global Healthcare

Code	EM8
Coordinators:	Christina Papageorgopoulou email: cpapage@hs.duth.gr
Semester	2nd
Type	Required
ECTS	7.5
Language	English
Instruction	39 hours of synchronous distance learning
Assessment	Final written exam (60%) and individual written assignment (40%)

Content and Objectives

The course examines health and healthcare on a global scale through a combination of evolutionary and cultural approaches. It focuses on the evolutionary foundations of personalized and precision medicine, the use of ancestry-related genetic data in clinical practice, gender and gender differences in health, as well as cultural ways of understanding illness, treatment, and care. At the same time, nutrition, breastfeeding, child-rearing, kinship structures, demographic transitions, and epigenetics are examined as fields where biological and cultural processes interact. The course also covers issues of cultural sensitivity, medical ethics, scientific communication, misinformation, and public trust. The course aims to help students understand health as a biological, social, and cultural phenomenon and to develop the ability to apply evolutionary and anthropological approaches to contemporary issues in global healthcare.

Learning Outcomes

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

- combine evolutionary and cultural approaches to healthcare.
- evaluate genomic and epigenetic data in social contexts.
- communicate health issues with cultural sensitivity and accuracy.

Course Modules

1. Evolutionary foundations of personalized and precision medicine.
2. Using ancestry-informed genomic data in clinical care and disease risk assessment.
3. Sex and gender differences in modern health and disease.
4. Cultural frameworks of health, illness, and healing.
5. Cultural dietary systems: fasting, feast-famine cycles, and food taboos.
6. Breastfeeding, weaning, and parental care across cultures.
7. Kinship structures, endogamy, and their impacts on health.
8. Demographic transitions and global health vulnerabilities.
9. Epigenetics I: fundamental principles and mechanisms.
10. Epigenetics II: Environment, Development, and Health.
11. Epigenetics III: Intergenerational Effects and Biosocial Approaches
12. Cultural sensitivity and ethics in medical practice.
13. Science communication, misinformation, and public trust

Suggested reading and educational materials

The core and supplementary bibliography, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the program's digital platform.

EM9 - Master's Thesis

Master's Thesis

Code	EM9
Semester	3rd
Type	Master's Thesis
ECTS	30
Language	English
Teaching	Individual research project with remote supervision
Assessment	Written Master's thesis and public oral defense before a three-member committee

Content and Objectives

The Master's Thesis constitutes the final stage of the Master's program and aims to synthesize and apply the knowledge, skills, and methodological tools acquired during the program. Upon successful completion of the Master's Thesis, students will be able to:

- have in-depth knowledge of the research topic covered by their thesis,
- to critically synthesize the topics covered by the Master's Program,
- search for, evaluate, and utilize the international scientific literature,
- design and apply appropriate research methodology,
- collect, organize, analyze, and interpret data,
- write scientifically sound texts with clarity and academic consistency,
- present and defend the results of their research.

Learning Outcomes

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

- formulate a clear and well-founded research question.
- apply appropriate methodology and interpret data or bibliographic material.
- write and defend an independent research paper in English.

Thesis Procedure

1. Approval of the topic and appointment of a supervisor and an examination committee.

2. Preparation of the thesis under academic supervision.
3. Submission of the text in English and a report verifying originality.
4. Public presentation and evaluation by a three-member committee.

Suggested reading and educational materials

The core and supplementary bibliography, scientific articles, presentations, and digital resources for the course will be finalized by the Course Coordinator and posted on the program's digital platform.