

Doc. 300.1.2

Date: 22 March 2021

Higher Education Institution's Response

- **Higher Education Institution:**
University of Cyprus

- **Town:** Nicosia

- **Programme of study
Name (Duration, ECTS, Cycle)**

In Greek:

Γεωπληροφορική στις Ψηφιακές Ανθρωπιστικές
Επιστήμες

In English:

Geoinformatics in Digital Humanities, 3-8 semesters,
90 ECTS, Magister Scientiae [MSc]

- **Language(s) of instruction:** English
- **Programme's status:** New
- **Concentrations (if any):**

In Greek: Concentrations

In English: Concentrations



The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the “Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws of 2015 to 2019” [N. 136 (I)/2015 to N. 35(I)/2019].

A. Guidelines on content and structure of the report

- *The Higher Education Institution (HEI) based on the External Evaluation Committee's (EEC's) evaluation report (Doc.300.1.1 or 300.1.1/2 or 300.1.1/3 or 300.1.1/4) must justify whether actions have been taken in improving the quality of the programme of study in each assessment area.*
- *In particular, under each assessment area, the HEI must respond on, without changing the format of the report:*
 - *the findings, strengths, areas of improvement and recommendations of the EEC*
 - *the conclusions and final remarks noted by the EEC*
- *The HEI's response must follow below the EEC's comments, which must be copied from the external evaluation report (Doc.300.1.1 or 300.1.1/2 or 300.1.1/3 or 300.1.1/4).*
- *In case of annexes, those should be attached and sent on a separate document.*

1. Study programme and study programme's design and development (ESG 1.1, 1.2, 1.7, 1.8, 1.9)

Findings of the External Review Committee

In general, the committee concludes that the quality of the proposed programme is high, and facilitates an inclusive and diverse environment that engages with the surrounding community. The application for the programme is timely and relevant for the job market in the Humanities, which is shifting to an increasing focus on technology, yet there are few programmes that tailor to this demand. The programme was designed by a committee of academics and students from the university, who were highly supportive of the effort. The department has indicated that all aspects of the curricula will be publicly available for prospective applicants to see, although because the programme is not yet active, the website is not 'live'. Each course has a clear examination process posted online, which is designed to maintain consistency between expectations and outcomes.

The committee found all aspects of the Study programme and the Study's programme's design and development Compliant. The programme has been proposed after mapping the international situation regarding similar graduate programmes. During the presentation to the external committee, examples of similar programmes were presented (UCL, Leiden University, Cologne University, University of Bradford, Cyprus Institute, and University of Peloponnese), stressing the fact that the proposed graduate programme is not competing them, but rather it moves towards a complementary direction. Its goal is to fill the gap that exists in the canvas of postgraduates studies fostering a wide spectrum of Geotechnologies applied not only in Archaeology but also to Digital History and the Humanities. The program is aiming to integrate the state of the art Geo-technologies to address research questions related to various fields of landscape archaeology, cultural resources management, risk assessment, spatial modelling, geoprospection, satellite remote sensing, monument monitoring, data analysis, artificial intelligence, visualization, etc.

The WEB site of the programme is ready to be launched by the time the CYQAA will give the green line of the certification of the programme. All the pages of the WEB site have been prepared with detailed information regarding the programme, the offered courses, the assessment method, the admission requirements, the infrastructure, the information regarding the facilities of the University and all other related information. The whole Web site was shown to members of the external committee.

The programme has established good external networks with other European institutes. They are part of the Young Universities for the Future of Europe (YUFE) alliance, in which structural standards are shared between eight universities in Europe. The University of Cyprus is part of the ERASMUS network, although apparently not a signatory to the Bologna accords. The proposed MSc programme will target recruitment and training of international students to work together with students from the Republic of Cyprus and Greece, providing an opportunity for the crossfertilization of competencies and ideas.

Some of the already offered graduate courses have been attended by YUFE and ERASMUS students. It is expected that they will continue to be interested in the domain of the Graduate program, as their universities do not contain such a robust program of education and training. Furthermore, a mailing list of Departments in History and Archaeology, Cultural studies, Geography, Information Technologies and other related topics has been prepared so that the advertisement of the program will be carried out the soonest after the certification of the programme to attract potential students. The Departments are from Universities of Cyprus, Greece, Middle East, Africa, Europe, Russia, United States and Australia. The mailing list has been also enriched with researchers from our wide network of collaborations. In this way, it is expected that the graduate programme will be able to attract the attention of a large number of prospected students.

The proposed programme focuses on digital heritage with explicit maritime and Mediterranean archaeology components. These focuses align with the department faculty specialties and will enable students to gain direct field-to-lab experience on some of the better-known archaeological sites of the region. The programme design is

ambitious with a desired matriculation to degree within three semesters (90 ECTS). The training is designed to provide moderate- to advanced competencies in digital archaeological techniques with outcomes geared initially toward the production of maps, culminating in spatial statistical analytics. These are adequate goals for an education scheme for such a programme to benchmark. The skill sets targeted by the education programme are relevant to public archaeology employers, as well as private sector employers who seek employees with digital informatics backgrounds. The declining role of the humanities overall as a share of European economies is a broader concern for the quality of the students applying to the programme over the long term, but the department feels that they have identified a target niche to attract a specific market of students.

The programme plan includes end-of-semester feedback from students on the quality of instruction and whether the students are satisfied with the course offerings. The programme also relies on direct and on-going dialogue between students and professors through oral presentations.

The graduate programme focuses not just to digital heritage and Mediterranean archaneology, but in the broader spectrum of Digital Humanities (including Archaeology and History). The courses that are offered provide a good background to students on digital/geoinformatics tools emphasizing both research questions and management of cultural heritage monuments and sites – research questions that can be applied in different geographic regions.

Emphasis is given on the hands-on training of the students and their exposure to the technological means (both software and hardware) that can be used to provide them with competitive skills that will ensure their future employment. It is the particular skills that are required from most of the potential employers in the field (public or private) and it is expected that the graduates of the programme will be able to master a number of them. Upon this recognition, the programme will be attractive to the potential candidates.

The continuous assessment of the programme from students and the constructive dialogue and interaction among the students and professors will lead to the gradual enhancement of the programme. The programme is expected to be adapted to the needs of the students (student-oriented). Furthermore, the continuous feedback of the programme from the students ensures the quality and evolution of the instruction methods and tools.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The proposed curricula is ambitious in scope, and if executed perfectly, the students will gain valuable skills that will make them competitive candidates for employment following acquisition of their MSc degrees. It builds on the existing strengths of the Department of History and Archaeology at University of Cyprus. The proposed software packages to be used are industry standards (e.g., ESRI, Agisoft), which employers will seek from prospective employees. The training is rigorous and will give students valuable hands-on experience in both terrestrial and underwater archaeological contexts. The students will learn to troubleshoot and problem solve in real-world circumstances, which are experiences that cannot be taught in a classroom.

The programme is indeed ambitious, but it is based on the essential needs of the students on an international level as it has been attested from previous international workshops dealing with the specific topic. Despite the level of difficulty, the graduates of the programme will be strongly competitive (on an international level) to find jobs or continue to the next level of their studies.

The proposed software packages that are used in the educational process of the programme are those that are compatible to the rest of the industry and the students will be trained on them, together with other open access software packages, to provide them with a better flexibility to be adapted to the requirements of future job requirements.

Hands-on experience is one of the added value of the proposed programme. Emphasis is given to provide training to a wide spectrum of software packages and state of the art instrumentation.

The primary mission of the university is research, and there are numerous funding opportunities to promote research and dissemination for faculty. This is a positive thing for the proposed MSc programme as the pedagogy is

designed to integrate field research into the teaching curricula. Therefore, the instruction capacity of the programme is elevated because students are able to access high-quality research tools, which are critical for meeting the educational goals set forth in the proposal. It was further noted by the committee that Prof. Apostolis Sarris, who will manage the proposed programme, is an excellent researcher with a significant track record in publishing quality outputs. While this does not necessarily ensure the long-term success of the programme, it can be a positive experience for students to interact with high-quality, dynamic researchers such as Prof. Sarris. Prof. Sarris holds the “Sylvia Ioannou Foundation Chair on Digital Humanities”. The investment of the Sylvia Ioannou Foundation to starting and maintaining the proposed programme (and Prof. Sarris’s position) is significant to ensure continuity of the programme over the long term. The agreement on this endowed professorship between the Foundation and the University of Cyprus stipulates that the position will be taken over and financed by the University after the promised funding period has expired.

Internal and external scholarships are offered to students. More scholarships will be secured by the time the programme will be initiated through sponsoring by private companies. A list of potential sponsors has been already compiled and scholarships will be requested from them.

The generous investment of Sylvia Ioannou Foundation guarantees the long term continuation of the graduate programme as it funds the position of the senior professor of the corresponding Chair, a postdoc position and a scholarship for a PhD candidate.

The University of Cyprus has also secured the funding for the continuation of the programme through the agreement signed with the Sylvia Ioannou Foundation. The academic personnel that participates in the programme, with their research projects and international collaborations will also be attractive to the prospected students, who can actively participate in these research projects.

The overall investment into institutional infrastructure (e.g., the new campus library) signals that the university is committed to a quality education for its students. The library has promised to support students and offers writing support and plagiarism checking software (Turnitin). The location of the university on a warm and sunny Mediterranean island with a rich archaeological tradition is favourable to attracting high-quality students to the programme. It is also noteworthy that the main building in which the archaeology section is located is in a beautiful historic building, which is an enriching environment for students. Overall, the programme structure is well-designed to attract international students, which is an explicit goal of the department’s and university’s strategic vision.

University of Cyprus is continuously expanding its infrastructure. Computer resources rooms, libraries, and other facilities are open and accessible to the students. The Archaeological Research Unit offers an ideal environment for the students and has a devoted library to Archaeology topics. More books are purchased to cover the topics of the new graduate programme. The specific focus of the program, the facilities offered by the university of Cyprus and the participating academic personnel create a niche for the prospective students.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

The committee is worried that the quality of the education is hindered by the relatively quick path to matriculation and reliance of the programme on the donated time of individual professors associated with the programme. By their own admission, the department acknowledges that their students come into the programme with low technical competencies, which is poorly suited for a three-semester (90 ECTS) matriculation.

It is widely admitted that most of the undergraduate students in the domain of Humanities lack a strong technical background. Furthermore, as the graduate programme is oriented towards an international audience, it is expected that not all of the students will have the same background. The graduate programme has already acknowledged the above and structured the courses in a way to provide the necessary fundamental knowledge to all students to progress successfully through the courses. No doubt that the 3 semester structure of the programme is demanding from the side of the students, but the past experience of teaching some of the graduate courses showed that students are well receptive and manage to digest the offered material covered by the courses within the suggested period.

The course designs are predicated on individual instructors' investments—all compulsory courses are taught by only one professor. We would recommend a team-teaching approach so that the success or failure of a course does not revolve around individuals, but is a group effort. There is a conspicuous absence of teaching support for the programmes in the form of teaching assistants. This will force the responsible professors of the courses to invest a significant amount of personal time in assisting students with technical problems with their computers and/or data handling. While this is manageable for a small class (e.g., 5-10 students), as the success of the programme grows, the quality of the instruction could be diminished as the amount of time the professors have to spend with students will decrease, leaving some students unable to access needed technical help.

At least two of the offered courses (ARC615- Practical Training in Field Archaeology and ARC699-Advanced Topics in Digital Humanities) are taught by a group of professors and external invited lecturers. Furthermore, visiting professors will provide further support and participate in the teaching of the courses until new professors will be hired. A post-Doctoral researcher will act as a teaching assistant, who is also funded by the Sylvia Ioannou Foundation, will provide continuous support in the teaching of the courses and the practical training of the students with the corresponding software and instrumentation. More Post-Doctoral students will provide support to the graduate programme (there are already 2 applications for post-Doctoral researchers through YUFE call and more will be submitted through the Onisilos call). The graduate programme is limited to a maximum number of 10 students and thus the group of students will be manageable in terms of satisfying their needs of supervision and guidance.

Some additional investment in equipment might be required, particularly if student numbers are high. Also, this is required for employability as employers like new staff to have been trained in the latest equipment.

The University of Cyprus covers all the expenses for specialized software (e.g. Agisoft, ArcGIS, Surfer, etc) needed for the courses. Most of the instrumentation comes with customized software, which is accessible to the students. All the above software providers are offering the software for free (educational licenses) to students enrolled at the University in case they need to install it also in their personal computers. This practice was successful during the previous months of remote teaching due to COVID-19 restrictions.

The Starting Grant of the University of Cyprus was used to obtain the basic infrastructure and instrumentation (magnetometers, soil resistance meter, ground penetrating radar). All of them are of the latest generation of instrumentation of their kind (purchased in 2020).

Two DGPS units are planned to be purchased with the funds of a recently successful INTERREG proposal. Services and research projects of the Digital Humanities Geoinformatics Lab have brought more funding, which will be directed towards the provision of new equipment (a tender is already out for purchasing a 2nd magnetometer and a magnetic susceptibility meter). Funds have been also secured for the purchase of an Electrical Resistance Tomography equipment and in the future a multi-sensor magnetometer unit will be the priority in terms of new equipment investment.

The above will make the Digital Humanities Geoinformatics Lab as a node of reference in the Eastern Mediterranean and all the equipment will be accessible for the training of the students. This exposure to such a wide spectrum of equipment is not usual to other graduate programmes of abroad and thus it will guarantee that students will have a good training and hands-on experience with the last prospection and analysis equipment.

The limited number (maximum 10) of students will allow them to get experience in most of the instruments.

2. Student – centred learning, teaching and assessment (ESG 1.3)

Findings of the External Review Committee

The programme curricula are explicitly designed to integrate field-based research with practical educational outcomes. The requirements to matriculate are rather rigid, which can be both a strength and weakness: the former because employers like standard outcomes of students, the latter because students are not afforded a lot of personal choice. Within the programme design, students will be taken into the field by their professors and given opportunities to utilise state-of-the-art data collecting equipment such as a remote aerial scanner (drone), groundpenetrating radar, electrical resistivity/earth resistance, global positioning systems, etc. They will further be instructed in how to upload the data to a server and process it for spatial-statistical analyses. These skills are critical for modern public archaeological practitioners as employers demand that new employees have basic competencies in these technologies.

The programme was designed so that it will satisfy the particular needs of students interested in geoinformatics technologies. Most of the existing international programmes do not provide a good balance between hands-on training and theoretical background. This is exactly the purpose of the particular programme, which through the particular outcomes will provide students with the appropriate skills to be employed by a number of private and public agencies or continue their studies in the PhD level.

From the 7 offered courses, 2 of them are elective in the archaeology domain (prehistoric to Medieval period) and 5 are focusing on the more technological aspects of the geoinformatics in the Digital Humanities. This is a good balance in terms of the topic of the programme and the interest of the students who will enroll.

The curricula are designed to begin with simple concepts in reckoning spatial environments and progress through advanced concepts. Although the programme name implies a broad digital humanities and informatics approach, the curricula are definitely catered to archaeology, specifically.

Indeed, the structure of all courses is made in such a way to provide the fundamental concepts behind the different technologies and progress gradually towards more sophisticated approaches. In all cases, the courses provide a wide number of the application of the techniques not only in archaeology, but also in other domains such as history and cultural resources management. Digital technologies which are taught in the programme can be easily applied in addressing different research questions from all of the above (e.g. risk assessment of archaeological sites or historical monuments, transportation and trade routes in prehistory or historical periods, diachronic settlement pattern analysis, etc.)

The reading lists are exhaustive and mostly focused on peer-reviewed publications. Each course offering has a list of 20-30 books and papers, which is presumably the core reading list of each class.

The large number of reading list included in each course is indicative and will be renewed frequently according to the latest developments. Furthermore, effort has been made so that all the suggested references are accessible to students (via the WEB or the Blackboard). More readings will be also available according to the individual interests of the students (e.g. on satellite remote sensing, machine learning, agent based modeling, etc.)

The campus Teaching and Learning Centre seems to be a valuable educational support resource for students in order to assist them with writing and finishing their degrees. However, their mission is general across the entire campus, and their expertise is not within the subject area of digital heritage.

The University's Teaching and Learning Centre is a valuable support to both students and professors. On one hand, it provides guidance to students about their writing skills and completion of their thesis and on the other hand it supports professors in terms of alternative ways of teaching.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The fact that much of the island of Cyprus – including the underwater areas surrounding it – is a premier

archaeological hotspot and the demonstrated willingness of the faculty to integrate their research sites into the training programme is a significant strength to this application. There is a growing need for graduate students to gain practical experience with utilising field equipment and then getting the data from the equipment to a computer. Furthermore, the programme objectives include an analytical component, which will provide the graduates with a significant set of tools in which they will emerge into their professional lives with hands-on experience that employers seek.

The whole faculty is more than eager to apply different technologies in their research projects and involve the graduate students in them. This involvement will be extremely constructive for the students as they will be able to experience an actual research environment, get actively involved in it, have a practical training that addresses real research questions, and follow the whole flow of processes from the application of the technologies to the processing of the measurements.

The reading lists are descriptive and varied and are supported by an excellent library system. There are a small number of proposed students, which will allow for robust discussion of the readings and lots of interaction with researcher-teachers.

There is a continuous improvement of the reading material. More books are purchased and will continue to enrich the existing material with publications that are more relevant to the topic of the graduate programme. Every semester the University Library asks suggestions for new volumes to be purchased.

The number of students needs to be relatively low in order to achieve the expected educational results, provide a good training to the students and supervise them closely during their courses and final thesis.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

Consider renaming the programme to Digital Heritage Management (or similar), which will be more relevant to the developed curricula. In examining the course offerings, there is very little relevant material to digital humanities outside archaeology, specifically. The course descriptions make vague mention of history from time to time, but the readings and applications are geared squarely at heritage studies.

Most of the courses offered by the graduate programme are dealing with the application of Geoinformatics and spatial tools (GIS analysis, geophysical prospection, aerial imagery, satellite remote sensing, photogrammetry, mapping, etc). There is an increased emphasis on the Geoinformatics, which is actually a dimension that differentiates the particular programme for other (e.g. UCL- Computational Archaeology, University of Leiden-Digital Archaeology, Cologne University -Archaeoinformatics, Cyprus Institute – Science, Technology and the Humanities and the Social Sciences, or the University of Peloponnese – Cultural Heritage and Science/Technology).

Despite the fact that there are no explicit history courses, the rest of the archaeological courses cover all periods, from prehistory to the Byzantine Era. Furthermore, the particular technologies and methods can be applied in the wider domain of history and archaeology. Even the newly emerged Digital History is making heavy employment of GIS mapping technologies, which is one of the core modules of the programme. Dealing with different topics such as navigation routes, trade networks, settlement patterns, itineraries of travelers, distribution of finds and cultural material or intangible cultural heritage archives can cover the whole area of Digital Humanities, which justifies the proposed title of the graduate programme. Furthermore, the programme is not limited on the heritage management but moves beyond it as it addresses a variety of hard-core research questions.

The readings may be a bit much and too advanced for the students, especially those coming in with lower requisite competencies. The choice of the textbook by Conolly and Lake (2006) and Mitchell and Collins (2015) is appropriate for the first semester GIS class, but the other compulsory texts will likely overwhelm the students. This is the case for almost all of the courses—they are ambitiously structured with a lot of reading provided, but perhaps too difficult a level for the anticipated calibre of students and too many texts for the students to adequately absorb.

The readings suggested have been selected to cover the needs of the students according to their individual backgrounds. There are references that provide information on the fundamentals and others that are intermediate

or more advanced. Obviously, it is not expected that students will go through all this material, but as a student oriented programme, specific readings will be suggested according to each student's individual interests. Other references will be also used for group projects. Additional readings, other than the indicative list provided for each course, will be delivered to students that will need to obtain a better knowledge of the state of the art in relation to their final thesis.

There is no course offering for writing the master's thesis. It is the opinion of the committee that with such an accelerated pace of learning to matriculation, many students will not succeed in completing their degrees. These could be undertaken for all MA level students, as they are shared skills. One obvious area where a project description and writing course could be added is in the second semester. There are three courses listed as compulsory that could be condensed into two (ARC671, ARC673 and ARC699). Computation techniques in the social sciences and humanities are nearly identical to geospatial techniques, especially in terms of how the curricula are designed. Similarly, the advanced topics in Humanities offerings share a significant amount of conceptual overlap with the computational techniques courses. We would recommend scaling back the scope of these courses to a more manageable workload and adding instead a course in which the students could systematically develop their thesis topics in collaboration with the professors in the programme. The way the curriculum is designed gives the students numerous potential software applications used in Geoinformatics but there is no general course related in geostatistics, which is believed to be very important in order to interpret the findings. We note that ARC673 and ARC671 include spatial statistics as side components of the modules, but the focus of these courses are broad.

The University's Teaching and Learning Centre is a valuable support to students and provide guidance with respect to the writing of their thesis. It is true though that there is no course devoted to the skills in relation to the writing of a Master's thesis. This is a general issue that concerns all the Departments of the University. Still, there are thoughts of developing such kind of course within the Department of History and Archaeology in the coming years.

On the other hand, most of the courses include a final project as their final course assessment. This contains both an oral presentation and a written report. A progress oral presentation if also delivered in the middle of the courses. A detailed feedback on their presentations and written reports is provided to students. Also, in the beginning of the course ARC670 (first semester) students are given directions of how to write and structure a report, the way to include the references and their format, ways to avoid plagiarism, etc. This kind of process ensures that by the time students start writing their Master's thesis will be able to handle adequately the skills needed for it.

With respect to restructuring the courses, it will not be possible, as the courses do not have overlapping material. ARC671 – Computational and Analytic Techniques in the Humanities and Social Sciences expose students to statistics (descriptive statistics, multivariate statistics, histogram creation, discriminant analysis, Pearson coefficient, etc), along with other methods of mapping with SURFER software. The latter exposes students to geostatistics needed for mapping analysis, including ways of sampling and interpolation, variograms, spatial filtering, etc. Thus, both main statistics and geostatistics are covered in this course. The broad focus of the particular course aims to expose students to a variety of software, which together with the most advanced GIS tools (ARC673), will be most probably used for the final research projects of the students.

ARC673- Geospatial Analysis and Modelling in GIS covers more advanced spatial analysis techniques dealing with least cost path, viewshed analysis, site catchment analysis, geomorphic indices, etc. which are not related to statistics. The particular spatial tools are needed in most cases for the processing of spatial data.

There is an over-emphasis on examinations, which is against the trend elsewhere in Europe, where formal assessments are giving way to more general pass/fail and descriptive evaluations. The faculty could consider minifeedback session partway through each module to ensure that students are on target to pass the courses.

The policy of the University does not allow a qualitative assessment of students, but instead a metric/quantitative system.

Class assessments is based on a combination of factors. For the compulsory courses, these include the following: ARC653, ARC670, ARC673 - Midterm exam, participation on Lab exercises/homework assignments and a final project report (written and oral presentation)

ARC671, ARC699 – homework assignments/Lab exercises and a final report (written and presentation)

Thus, a continuous assessment is achieved during the homework assignments. Furthermore, the midterm exams act as an intermediate feedback to the students, as it concerns a full Lab assignment/exercise that students are requested to complete during a class session. It is not an exam on the strict sense, but rather an in-class assessment based on a large lab project that students have to complete with the particular software tools.

In the last semester there is a choice of practical course, but the time does not seem sufficient for its completion, especially in light of the fact that the students will be simultaneously writing their MSc theses.

As mentioned also in the proposal, the practical course (ARC615-Practical Training in Field Archaeology) is offered only during the summer semester and not in the fall semester. Upon taking this course, this will allow students to progress and focus only to their thesis during the fall semester. In case they do not take the Practical Training course during the summer, they shall be requested to fill the rest of the ECTS units through attending another elective course during the fall semester, but in this case they shall have the whole summer to initiate their Master thesis research.

While the present teaching staff are committed to the programme's success, the focus on individuals rather than group competencies troubled the committee. Specifically, the lack of teaching support in the form of teacher's assistants or an explicit committee-based supervision and evaluation panel for students puts the onus of educating and assessing the students too squarely on individual professors. It is not clear from the course descriptions or materials provided whether the student assessments are performed by the professors teaching the course or external examiners. Minimally, there needs to be a provision for assuring the fair application of grades in the form of an external examiner evaluating the highest and lowest (e.g.) 10% of exams from each course. Additionally, there is no mention how master's theses will be marked—is this performed by the supervisor or committee and how is this formulated on balance with internal and external censors?

The very nature of the program is based on the group effort. The program is neither following a conventional archaeological graduate program curriculum, nor the syllabus of a technical geoinformatics graduate program. It tries to fuse these in a common educational programme, and its implementation is based on the interaction between all the faculty members and the students. This kind of interaction will be crucial during the final stage of the Master program, when students will carry out their Master thesis and when they need to address research questions falling within the Digital Humanities domain. Thus, supervision of the students will be based on a group committee that will offer the right directions and guidance to the students. The final thesis for each student will be presented in front of a 3 members committee and will be evaluated separately by each member who will make all the necessary reviewing comments. In case there is a need (eg. of a very specialized topic), external members from the University of Cyprus or other Universities will be invited to participate as supervising committee members.

Teaching support will be provided by the postdoctoral researchers (one of them already funded by the Sylvia Ioannou Foundation) who are available through research projects of the faculty and have the necessary experience. This interaction between the graduate students and the post-doctoral researchers will be most fruitful, as they shall allow a cross-fertilization of research ideas.

3. Teaching staff (ESG 1.5)

Findings of the External Review Committee

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

The staff are comprised of excellent researchers with impressive CVs who are long-term academics. They are highly experienced and understand the University's system and pedagogical stance. There are, however, many open vacancies in the department, which raise some questions about the long-term sustainability of a new programme.

The graduate programme involves about 80% of the existing capacity of the scholars (archaeology oriented) in the Department of History and Archaeology. All of them are renowned for their expertise, research work and projects. The University regulates the academic posts for each Department, but in the long term there are expectations for the increase of the academic members (at least 2 posts are expected in the coming years, one after the ERC project brought by Dr. Artemis Georgiou and another one based on the Strategic positions of the University).

Upon the successful implementation of the program and based on the undergraduate students' suggestions and the recommendations made recently by the external review committee of the undergraduate program in History and Archaeology, it is expected that more positions will be announced in the near future and most probably one of them will be in the topic of new technologies in archaeology, namely compatible to the topic of the graduate program.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The teaching staff seem quite committed to the success of the programme. There was no doubt about the resolve of the individuals to develop a robust educational programme, which targets recruitment of international students to build a diverse student cohort. There is a sound link between research and teaching with a varied assessment system in place.

Indeed, there is a sound linkage between research and teaching by all members of the faculty. This will benefit students to participate in the research projects and benefit from this experience. All faculty members are enthusiastic with the new graduate programme and are willing to support it in different ways. It is well understood that the orientation of the program is to attract international students from different continents and provide them a niche of a study module which is missing in many countries worldwide.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

We would propose that the university prioritise filling the vacant positions in the department and provide more teaching support for existing staff. While capital projects such as new libraries and buildings are attractive, it is teaching staff that are the critical interface with students, with whom the success or failure of the university ultimately depends.

The international recognition of the University of Cyprus (and especially of the Department of History and Archaeology) is based on a number of factors, one of which is the high number of faculty members with respect to the enrolled students. The University of Cyprus has emphasized the need of increasing its teaching personnel and this will continue to be its priority together with the rest investments in infrastructure.

4. Student admission, progression, recognition and certification (ESG 1.4)

Findings of the External Review Committee

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

Students will be admitted to the programme on the basis of specific regulations of the Ministry of Education and Culture and the University of Cyprus, which are adhered to in a consistent manner and are published for the information of the public and candidate students. To be considered for admission, students must have a bachelor's degree from a recognised institution in a relevant field to the programme with an equivalent of 6.5/10 in the education systems of the Republic of Cyprus and Greece (or equivalence from external applicants), two letter of recommendation, GCE or TOEFL with a grade "B" or higher for GCE- O' level or 600 for TOEFL (native English speakers are excluded from this provision), a 1-page letter of intent and an oral interview in English.

Since this is a new programme, the Committee met with existing Master's level students in the department. Overall, the students were very positive towards the institution, the Department and individual academics.

Students' admission criteria are compatible to the standards set by the University of Cyprus and the directions of the Agency CYQAA. All these criteria are similar to the international standards set by other universities abroad. Previous experience with international graduate programmes at the Department of History and Archaeology, such as the Field Archaeology on Land and under the sea, has shown that these criteria are sufficient to provide a good profile of the prospecting students and help considerably the selection process. The current and previous students of the programme has shown that the selection of the students based on the particular criteria is successful and until now no problems have risen.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The standards for admission into the programme appear to be rigorous and fair. The admission policy of the programme is well defined. Requirements are transparent and public, and include aspects such as relevant background and the level of English. The provisions in place should draw an internationally minded pool of applicants of diverse socio-economic backgrounds and gender.

Low student numbers will help with monitoring the progress of each student – this is important due to the broad range of prior student experiences.

The admission criteria are openly advertised by the Graduate School of the University

(<https://www.ucy.ac.cy/graduateschool/en/admissions/admission-requirements>,

<https://www.ucy.ac.cy/graduateschool/en/admissions/postgraduate-programmes-places>) and are going to be also

published at the Web site of the programme. The particular Web page was presented to the external review committee members. The University of Cyprus does not make any discrimination (racial, ethnic, religious, linguistic, gender, etc.) in the admission of students. The programme is open to all students and reviews their credentials on an equal basis. Due to its nature, the programme is expected to attract international students. The number of the available places is limited to 10, which secures the better training and supervision of students.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

English language requirements should be checked to meet needed standards for incoming students. What are the thresholds for written / spoken English for acceptance into the programme?

The English language requirements are satisfied through one of the following criteria:

GCE O-Level >B, or TOEFL >600, or IELTS >6.5.

The English language proficiency is also checked through the letter of intent that will be submitted by the candidates and the personal interview in front of the selection committee members. In the case of the IELTS, scores are given



ΦΟΡΕΑΣ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΤΗΣ ΑΝΩΤΕΡΗΣ ΕΚΠΑΙΔΕΥΣΗΣ
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for each section (listening, reading, writing and speaking) separately and this helps identifying each of the English language proficiency capability of the candidate students.

5. Learning resources and student support (ESG 1.6)

Findings of the External Review Committee

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

On balance, the committee was impressed with the campus environment as a good location for learning and student development. The Department of History and Archaeology itself is dispersed among several different buildings, which is an admitted shortcoming for cross-disciplinary integration and education. There is a significant amount of equipment for field-based geophysical prospection and data recording housed in the Annex building of the department. However, the Annex itself seems to be little else besides a storage facility and is not a location that is conducive for student training, particularly as it relates to data processing.

The Department makes good use of Blackboard, Turnitin and other digital teaching tools. They seem set to continue their use past the COVID19 outbreak.

The University of Cyprus is continuously investing in its infrastructure. More buildings are under construction. Within a few years, the Department of History and Archaeology is expected to be housed in new buildings at the main University campus in Aglanzia. The headquarters of the Archaeological Research Unit (ARU), at the center of the city of Nicosia, will continue to exist. For the immediate future, the Annex of ARU is planned to be moved to a new building as there are going to be more students due to the new graduate program and more researchers due to a new ERC and other projects that the Department recently received. This will provide more offices and space to the students.

In all cases, the new Annex building will not be used as a storage place of the instrumentation, but it will also host a number of offices that will be used from the professors, the post-doctoral researchers and the graduate students. A number of tools for teaching and exchange platforms with students is available from the University and they shall continue to contribute in this direction in the future.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

The campus infrastructure is generally adequate or excellent to support the programme. The library has offered computing facilities needed for desktop GIS applications. Students seem well supported with psychological and medical services provided by the university.

The University campus is new and has an excellent infrastructure. There are different computer resource rooms at the main library which are accessible to students for most periods of the day and the weekends. The computer resource rooms have been supported by the IT support group and technical services of the University, which are responsible for installing all the necessary software to be used by the students.

The University of Cyprus provides medical and psychological support to the students.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

We would advise that there is more computer access and support for students in department-centred laboratory settings. It needs to be acknowledged that the equipment will require a dedicated technician in perpetuity. Currently, there is a post-doctoral researcher on staff for this support, but this position should be made permanent. The University Library has a number of computer devote resource rooms which are all accessible by students 7 days per week. Students are gathered there a lot of times to carry out their assignments and work together as groups. The computer support is provided centrally from the IT services of the University and they are responsible for installing and upgrading the licenses of the necessary software under the direction of the faculty members. It is not

allowed for neither the faculty nor students or any other individual to make certain modifications to the software installed at the University computers.

In any case, the post-doctoral researcher, a position which is ensured by the funding of the Silvia Ioannou Foundation for the whole duration of the programme, is able to provide support to the students to install specific software in their computers. His role is also critical for the installation of more specialized software (e.g. for processing GPR or other geophysical data) to be used by the students.

At the same time, there is one permanent technician at the Archaeological Research Unit who takes care of computer connections and network, the communication network and other maintenance requirements needed for the various instrumentation of the ARU.

For simple spatial GIS applications such as map displays or find distributions generated from databases, customary computers (laptops or desktop) are sufficient. For the calculation of extended spatial data that also uses graphical material (photogrammetry, structure-from-motion), such computers are usually no longer sufficient and workstations with high computing power are needed. It is unclear whether individual workstations are already available at the Institute or whether these will have to be procured in the future.

The computers that exist in the computer resource room of the main University Library are compatible with the needs of the software. The computers are maintained and upgraded to satisfy at least the minimum hardware requirements needed for the specific software.

Further computers (workstation power) are available from the Digital Humanities Geoinformatics Lab and will be made available to the students according to their processing needs. More units are expected to be purchased from the current funding of research programs.

It would be useful for the students to have free access to an application to check for plagiarism prior to turning in an assignment so as to avoid, if it is desired, any unfortunate incident. The committee also believes that a definition of penalties a student would receive, if he/she tries to cheat, would provide extra transparency and integrity to the department.

The rules regarding penalties in cases of plagiarism are clearly explained at the Bulletin of Postgraduate Studies Rules of the University of Cyprus

(https://ucy.ac.cy/graduateschool/documents/Kanones/RULES_METAPTIXIAKIS_FOITISIS_ENGLISH.pdf & http://library.ucy.ac.cy/per-page-files/services/references/plagiarism/plagiarism_02032018t.pdf)

The Web page of the University has also provided links to online tools (e.g. Viper Plagiarism Scanner or grammarly-plagiarism checker) for the students.

It would be valuable for the students to have an academic advisor who will guide them through the whole period of the programme, for instance to help them to write academically, to find the resources needed for the assessments (books, articles), use and get familiar with software or/and hardware, etc. Student success is better ensured if they are well supported under the auspices of a single (or shared) advisor(s).

According to the Postgraduate Studies Rules:

“The Department appoints an Academic Advisor for each newly registered postgraduate student. For the writing of a dissertation a Research Supervisor is required. The Advisor is appointed by the Department Board together with the student and the proposed Advisor. The Research Supervisor monitors the student’s research and other work and offers the necessary guidance. Each faculty member of the University of Cyprus, may at the same time supervise up to ten (10) PhD students unless the departmental rules of postgraduate studies set a different limit”.

The above ensure the constructive supervising and guidance of the graduate students.



6. Additional for doctoral programmes (ALL ESG)

Click or tap here to enter text.



7. Eligibility (Joint programme) (ALL ESG)

Click or tap here to enter text.

B. Conclusions and final remarks

Please provide constructive conclusions and final remarks which may form the basis upon which improvements of the quality of the programme of study under review may be achieved, with emphasis on the correspondence with the EQF.

In conclusion, the EEC found the scheduled Master programme on Geoinformatics in Digital Humanities in all general areas, compliant with the demanded standards. It has the potential to become an important component in the training of practically oriented archaeologists of all archaeological sub-disciplines. The launch of the programme comes timely. Students and a broad range of employers are expecting skills in spatial analysis using Geographic Information Systems (GIS) and other digital applications such as photogrammetry. The program is well integrated into the educational system of the University of Cyprus and the Department of History and Archaeology and has ambitious goals. It makes serious demands on the students' willingness to learn and presents a challenge to the teaching staff. The assured funding of a Foundation chair on Digital Humanities by the Sylvia Ioannou Foundation makes the program reliable. Together with the academic support of the whole department this encourages innovative teaching.

It is indeed our hope to create a competitive graduate programme of international level.

The proposed courses, the emphasis on hands-on training, the infrastructure and instrumentation, the whole academic settings of the University of Cyprus and the enthusiasm of the faculty, in tandem to the students' interest and passion, are the necessary ingredients to have a successful graduate programme.

The review of the scheduled programme has identified a number of aspects that could improve the programme in future. These have to be understood as recommendations to enhance what is already a promising programme:

- Renaming the programme to Digital Heritage Management (or similar) would do more justice to the content of the programme and avoid false expectations.

As it was argued in the above paragraphs, most of the courses offered by the graduate programme are dealing with the application of Geoinformatics and spatial tools (GIS analysis and modelling, geophysical prospection, aerial imagery, satellite remote sensing, photogrammetry, GPS mapping, advanced methods of data processing and analysis, etc). Thus there is an increased emphasis on the Geoinformatics, which is actually a dimension that differentiates the particular programme from others (worldwide).

The technological means that are taught can be applied in all periods of history and archaeology and are not limited to Heritage management, but instead they address hard core research questions that cover all domains of Digital Humanities (landscape modelling, mapping of archaeological sites through ground based and satellite remote sensing, settlement pattern analysis, network analysis, risk assessment, geostatistical methods for the distribution of material culture remains, itinerary reconstruction of historical travelers, diachronic land use modeling, geographical distribution of intangible heritage, etc).

Thus the title is representative of the topics covered by the graduate programme, which tries to embrace both Geoinformatic Technologies and Digital Humanities and the detailed analysis of each course curriculum makes clear of what students will be able to learn through each course.

- Rethinking if a three-semester (90 ECTS) matriculation is really the best way for a successful training or if a semester more (as obligatory in Bologna structures) would not be more adequate.

The Bologna structure (BA-3years, MA-2years, PhD-3 years) is somewhat incompatible to the Cypriot (but also to a number of other countries) educational system, where BA studies last for about 4 years.

Furthermore, despite the demanding character of the graduate programme, it has been realized that past students deal adequately with the courses in a 3 semester program and can progress towards the writing of their Master

thesis from the summer semester, having thus about 7 months to carry out their research and write their Master thesis.

Of course we shall be open to modify the duration of the studies in case this is more preferable and necessary to the students, but this will be a conclusion to be reached after the first years of the programme.

- Priority should be given on filling the vacant positions in the department, on establishing the position of a skilled technician and on providing more teaching support for the existing staff.
- For the future, attention should be paid to the acquisition and maintenance of technical resources; these are often expensive devices that are costly to maintain and require repairs or need to be replaced by new devices due to technical progress.

Both of the above remarks are critical for the long-term successful implementation and sustainability of the graduate programme. The increasing investment of the University and the Department in new positions of the academic and research personnel constitute a priority of their strategic planning. The enhancement of the undergraduate programme of the Department of History and Archaeology is definitely taking this into consideration in order to secure more lecturers and researchers, some of them oriented in New Technologies in History and Archaeology, who can contribute and support the graduate courses of the programme. A couple of Post-Doctoral researchers are also expected through the various calls (YUFE and Onisilos Post-Doc funding schemes) and research projects. A permanent technician is also available at the Archaeological Research Unit and he is already taking experience of the various instrumentation of the Digital Humanities Geoinformatics Lab, which will be used for the hands-on training of students.

The maintenance and increase of the instrumentation and computer facilities are also expected to be secured through the fees of the graduate programme, the research projects of the Digital Humanities Geoinformatics Lab and the support of the University and the Silvia Ioannou Foundation.

All members of the EEC would like to express their thanks to the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, to the management of the University of Cyprus and to the academic and administrative staff of the Department of History and Archaeology as well as to the students.

C. Higher Education Institution academic representatives

<i>Name</i>	<i>Position</i>	<i>Signature</i>
Apostolos Sarris	Professor- “Silvia Ioannou” Chair on Digital Humanities	
Click to enter Name	Click to enter Position	
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Click to enter Name	Click to enter Position	
Click to enter Name	Click to enter Position	
Click to enter Name	Click to enter Position	

Date: 22 March 2021

