



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
HELLENIC REPUBLIC



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Accreditation Report for the Undergraduate Study Programme of:

Statistics and Insurance Science

Institution: University of Piraeus

Date: 13 February 2021

Report of the Panel appointed by the HAHE to undertake the review of the Undergraduate Study Programme of **Statistics and Insurance Science** of the **University of Piraeus** for the purposes of granting accreditation

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PART A: BACKGROUND AND CONTEXT OF THE REVIEW

I. The External Evaluation & Accreditation Panel

The Panel responsible for the Accreditation Review of the Undergraduate Study Programme of **Statistics and Insurance Science** of the **University of Piraeus** comprised the following four (4) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

- 1. Professor George Michailidis (Chair)**
University of Florida, Gainesville, Florida, USA

- 2. Professor Jannis Angelis**
KTH Royal Institute of Technology in Stockholm, Stockholm, Sweden

- 3. Mr. Stelios Mastrogiannakis**
Member of the Economic Chamber of Greece, Athens, Greece

- 4. Professor Konstantinos Serfes**
Drexel University, Philadelphia, Pennsylvania, USA

II. Review Procedure and Documentation

The External Evaluation & Accreditation Panel (henceforth EEAP) conducted, during the period February 8-13, 2021, the accreditation evaluation of the Undergraduate Programme (henceforth UP) of the Department of Statistics and Insurance Science (henceforth DSIS) of the University of Piraeus.

Due to the Covid-19 pandemic, the EEAP could not visit the Department physically and conducted the accreditation evaluation via Zoom teleconferencing.

On Thursday, January 28, 2021, members of the EEAP attended a Zoom teleconference briefing by HAHE's General Director Dr. Christina Besta, who outlined and explained the procedures and rationale for the accreditation. On Monday, February 8, 2021, the EEAP met in private to discuss the review process, allocate tasks, and identify possible issues to be addressed during the visit.

The EEAP received in advance from HAHE the following documentation and supporting material related to the Statistics and Insurance Science programme.

1. The guidelines for accreditation created by HAHE.
2. The mapping grid created by HAHE.
3. A tabulation (prepared by HAHE) of the scores of the programme regarding the quality indexes for the years 2016 – 2019.
4. The accreditation information for the programme prepared by DSIS.
5. A set of annexes to the accreditation proposal, including the study guide, course descriptions, etc.
6. Statistical data regarding DSIS and the specific programme of studies.
7. The Quality Assurance policy of the specific programme of studies.
8. A set of documents presenting quality indicators both for the department and the programme.
9. The report of the 2014 external evaluation conducted by HQA for DSIS.
10. The results of the internal evaluations of the specific programme of studies.

On Tuesday, February 9, 2021, the EEAP met the Vice Rector Prof. Pantelis Pantelidis, who gave a presentation about the University and its history, its Schools and Departments, physical infrastructure and policies and areas of concern. The EEAP then met with the Chair of the Department, Prof. Sotiris Bersimis, who gave a presentation focusing on the (a) recent history, (b) academic profile, (c) current status, and (d) strengths of the Department, as well as some issues that require further attention. Subsequently the EEAP met members of OMEA and MODIP as well as MODIP staff. The Chair of OMEA, Prof. Konstantinos Politis and its member Prof. Charalambos Evaggelaras, made a presentation discussing Quality Standards and summarizing all the information collected by OMEA and addressing in detail the 10 Principles that HAHE uses for accreditation purposes. A discussion between OMEA/MODIP and EEAP members ensued, clarifying points made during the presentation. The EEAP also had the opportunity to review student assignments, theses, exam papers and examination material, which were made available by the OMEA. Finally, the EEAP looked at the revisions made in the DSIS undergraduate programmes based on the recommendations of the 2014 external evaluation of the

Department. A discussion about this topic is provided in subsequent sections of the report. The EEAP then met with members of the teaching staff and representatives of students of the UP. The day concluded with EEAP's debriefing.

On Wednesday, February 10, the EEAP had (via teleconference) (a) a discussion about and an on-line tour of classrooms, lecture halls, libraries, computing laboratories, and other facilities, and (b) separate meetings with a group of graduates of the programme and select employers and social partners. Due to the remote nature of the meeting, the EEAP did not have the opportunity to observe teaching. Following a short debriefing, the EEAP met with OMEA & MODIP representatives to clarify certain points and findings. The day concluded with a meeting with the Vice-Rector and President of MODIP, the Head of the Department, and OMEA and MODIP members to discuss informally the key findings and recommendations.

The report of the EEAP was prepared in the period February 11-13. The final document was submitted to HAHE on Monday, February 15, 2021.

The schedule of the two-day long e-visit was well structured and organized and OMEA and MODIP provided extensive material to EEAP for its report. Hence, the EEAP obtained a comprehensive picture of the Department's vision, educational programmes, infrastructure and efforts for education of the undergraduate and graduate students.

The quality of the UP is in accordance with international standards.

The EEAP noted the dedication and commitment of the teaching staff, the Department's efforts to develop rigorous procedures for monitoring the assurance quality, and, in general, the effectiveness of the UP. As also indicated in the report, there is always room for further improvements of teaching and training of the students and the UP. Some of the weaknesses noted are due to factors beyond the control of DSIS or indeed the University. Key such factors include the very large number of incoming first year students, a process regulated by the Ministry of Education and Religious Affairs (thereafter called ME for brevity) and to recent developments (e.g., primarily retirements and a freeze in hiring due to economic factors) that led to reduction in the teaching staff.

III. Study Programme Profile

DSIS was established in 1984 and is a unit of the University of Piraeus.

During the 2020-21 academic year the Department has 17 active faculty members - 2 full professors, 12 associate professors and 3 assistant professors. There are 6 staff members that provide administrative support to the functions of DSIS.

There are close to 3000 registered undergraduate students, while those in years 1 to 6 are approximately 1500. Hence, the current ratio between permanent teaching faculty and students is 1:174 and for those in years 1 to 6 is 1:88. This is extremely high and detrimental to the educational goals and mission of the Department.

The last few years DSIS regularly admits over 250 students (including transfers from other Universities) due to ME's mandate, while it requests only 150. It is of paramount importance that the ME addresses this situation which is counterproductive and has a negative impact on the quality of the UP. This problem can be dealt with by either increasing the size of the faculty or reducing the number of incoming students or both.

DSIS offers two Masters programmes, one focusing on Applied Statistics and the other on Actuarial Science and Risk Management, as well as a Ph.D. degree. The Applied Statistics Masters programme, with 32 enrolled students in the 2020-21 academic year, focuses on Applied Statistics and Data Science. The graduation on time rate (after 3 semesters that is the nominal duration of the programme) is around 20% for the last 3 years and rises to 95% after 3 years of enrolment in the programme. The Insurance Science Masters, with 27 enrolled students in the 2020-21 academic year, focuses on the corresponding topics. The graduation on time rate (after 3 semesters that is the nominal duration of the programme) is around 40% for the last 3 years and rises to 95% after 3 years of enrolment in the programme.

Currently, there are 20 students enrolled in the Ph.D. programme.

Successful completion of the undergraduate degree requires 40 courses, corresponding to 240 ECTS; 19 of these courses are mandatory for all students and the remaining 21, elective. The UP is well structured and provides a nice balance between mandatory and elective courses to students as they progress through the programme; for example, the first two semesters are heavily loaded with mandatory courses, while in the 8th semester all courses are elective. Elective courses can be selected from the following five directions: Statistics, Actuarial and Insurance Science, Finance and Economics, Informatics and Mathematics. Each student must take at least 4 elective courses from the first two directions. A practicum ("πρακτική άσκηση") is one of the elective courses and around 50 students enrol in it each year. Students that complete 4 courses in Informatics obtain a corresponding certificate.

The majority of the students in the UP takes much longer than the assumed 4 years (8 semesters with 5 courses/semester) to complete their degree. According to the data provided to the EEAP by OMEA and MODIP, the average graduation time significantly exceeds the allotted time of 4 years and this timeline has held steady over the years. There is very small number of students

that graduate within four years (less than 10 in the academic year 2019-20); this number increases to around 35 for those graduating within 5 and to 75 for those within 6 years.

The EEAP feels that this is broadly unsatisfactory and primarily reflects inadequate preparation at the secondary education level of a portion of the students admitted to DSIS, or not particular interest in the subject.

The data provided to the EEAP also shows a small increase on the number of newly enrolled students from 246 in 2015 to 280 in 2020. During the same period the teaching staff decreased substantially, primarily due to numerous retirements. This trend is problematic but will be somewhat mitigated by the addition of new faculty members that the ME has authorized (3 junior faculty are expected to join in the next academic year, while other positions have been allocated to the Department).

In view of the information above, the EEAP strongly recommends that the number of admitted students is reduced to no more than 150, which also corresponds to DSIS' request to the ME.

On the other hand, the EEAP strongly believes that, given that the students were admitted to the UP, the faculty should do everything possible to educate and train them so that they are able to seek employment after graduation. This means that considerable attention should be given to the first 2 years of studies. One possibility is to create more sections (3, instead of the current 2) for the mandatory courses of the first year of study in the UP.

The last external evaluation of DSIS took place in 2014. EAAP commends the Department for implementing many of the recommendations proposed. The most important revisions related to the UP are: (i) a significant reform of the UP in 2017, by reducing the number of courses required for the undergraduate degree to 40 from 47, (ii) streamlining mandatory and elective courses and creating five directions for the latter, (iii) integration of software packages into all courses of an "applied/computational" nature, (iv) making the practicum an elective course counting for credit, (v) introducing Data Science and Informatics focused courses and (vi) adding recitation and lab sessions to more courses through the employment of Ph.D. students.

The recommendations of the external evaluation that were not followed to date will be discussed later in the report. It is the opinion of the EEAP that all the changes outlined above have contributed positively to the improvement of the UP.

PART B: COMPLIANCE WITH THE PRINCIPLES

Principle 1: Academic Unit Policy for Quality Assurance

INSTITUTIONS SHOULD APPLY A QUALITY ASSURANCE POLICY AS PART OF THEIR STRATEGIC MANAGEMENT. THIS POLICY SHOULD EXPAND AND BE AIMED (WITH THE COLLABORATION OF EXTERNAL STAKEHOLDERS) AT ALL INSTITUTION'S AREAS OF ACTIVITY, AND PARTICULARLY AT THE FULFILMENT OF QUALITY REQUIREMENTS OF UNDERGRADUATE PROGRAMMES. THIS POLICY SHOULD BE PUBLISHED AND IMPLEMENTED BY ALL STAKEHOLDERS.

The quality assurance policy of the academic unit is in line with the Institutional policy on quality, and is included in a published statement that is implemented by all stakeholders. It focuses on the achievement of special objectives related to the quality assurance of study programmes offered by the academic unit.

The quality policy statement of the academic unit includes its commitment to implement a quality policy that will promote the academic profile and orientation of the programme, its purpose and field of study; it will realise the programme's strategic goals and it will determine the means and ways for attaining them; it will implement the appropriate quality procedures, aiming at the programme's continuous improvement.

In particular, in order to carry out this policy, the academic unit commits itself to put into practice quality procedures that will demonstrate:

- a) the suitability of the structure and organization of the curriculum;*
- b) the pursuit of learning outcomes and qualifications in accordance with the European and the National Qualifications Framework for Higher Education;*
- c) the promotion of the quality and effectiveness of teaching;*
- d) the appropriateness of the qualifications of the teaching staff;*
- e) the enhancement of the quality and quantity of the research output among faculty members of the academic unit;*
- f) ways for linking teaching and research;*
- g) the level of demand for qualifications acquired by graduates, in the labour market;*
- h) the quality of support services such as the administrative services, the Library, and the student welfare office;*
- i) the conduct of an annual review and an internal audit of the quality assurance system of the undergraduate programme(s) offered, as well as the collaboration of the Internal Evaluation Group (IEG) with the Institution's Quality Assurance Unit (QAU).*

Study Programme Compliance

The University has established an appropriate Quality Assurance Policy which fully satisfies the relevant requirements. The Key Performance Indicators (KPIs) are regularly updated. Through the OMEA the DSIS follows the guidelines of the institutional policy regarding its UP. The Department's general assembly has the overall responsibility for reviewing the UP and ensures

its consistency with the Institutional Quality Assurance standards. The MODIP monitors and enforces the Quality Assurance.

The DSIS undertook a major revision of the UP in 2017 (see discussion in Part A) and continues to make adjustments on an annual basis in order to address new developments in the field of Statistics and Insurance Science and thus equip the students with the right skills for successful careers. The revised curriculum provides a solid technical/theoretical background and also makes heavy use of software in applied/computational courses. A number of new courses with emphasis on analysis of Big Data were introduced. Further, many courses offer recitation and/or lab sessions. Nevertheless, there is always room for improvement and specific recommendations are made below and in later sections of the report.

Overall, the programme meets international standards. The EEAP had discussions with a number of current and past students, who showed a high degree of satisfaction with the UP and the theoretical and applied skills acquired.

DSIS has developed strong relationships with national and international employers that is beneficial to the students and also to the Department. They provide projects for the practicum, employment to graduating students and also information to the teaching faculty about skills desired in the marketplace. The practicum also connects the UP and the students with employers and DSIS should consider making it a mandatory course. The EEAP was encouraged by the positive trend of students enrolling in this elective course, and the positive feedback provided by both students and employers. There is also evidence that on many occasions the practicum results in a job offer to the student.

The good research calibre of the faculty of DSIS influences positively the students' undergraduate education. This is consistent with the fact that a number of their students succeed in entering international universities for graduate studies, while others are successful in their professional careers.

The University has developed a very efficient information system to record student progress and outcomes.

The QA policy is in place and the MODIP within the University structure oversees its proper and regular implementation.

Administrative services offered by DSIS and the University are satisfactory. The students have access to software and scientific bibliography and data resources through physical access (labs/library) and also through remote access. There is a career centre and a medical centre.

An issue that requires attention is that for the vast majority of courses offered, the only assessment is through the final exam. There are technological solutions through online platforms that can assist in more frequent assessment and feedback to the student. A number of faculty have experimented with such solutions due to remote learning due to Covid-19. The EEAP strongly recommends that DSIS adopts such practices for all courses. This is particularly important for mandatory courses in the first two years of the UP, which tend to be large and with many students exhibiting inadequate preparation in the underlying subject.

Teaching faculty informed the EAAP that many incoming students are ill prepared for the rigor of the UP, due to inadequate coverage of essential topics in the high school curriculum. The EAAP recommends that DSIS designs a course to cover such gaps for incoming students.

Panel Judgement

Principle 1: Institution Policy for Quality Assurance	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- Undertake frequent revisions of the UP and the curriculum.
- Introduce frequent evaluation of students through quizzes and, for more advanced courses with small enrolments, midterms and (group) projects.
- Introduce new courses with an emphasis on the analysis of Big Data (e.g., statistical/machine learning, artificial intelligence, etc.).
- Introduce courses in scientific computing and also in data ethics.
- Consider providing three sections (instead of the current two) to introductory mandatory courses offered in the first year of the UP.
- Consider adding more credit hours to the practicum elective course, thus providing incentives to students to enrol in it.
- Consider offering an introductory course that covers prerequisite material for introductory courses in the UP; this course should be targeted to not adequately prepared incoming students.

Principle 2: Design and Approval of Programmes

INSTITUTIONS SHOULD DEVELOP THEIR UNDERGRADUATE PROGRAMMES FOLLOWING A DEFINED WRITTEN PROCESS WHICH WILL INVOLVE THE PARTICIPANTS, INFORMATION SOURCES AND THE APPROVAL COMMITTEES FOR THE PROGRAMME. THE OBJECTIVES, THE EXPECTED LEARNING OUTCOMES, THE INTENDED PROFESSIONAL QUALIFICATIONS AND THE WAYS TO ACHIEVE THEM ARE SET OUT IN THE PROGRAMME DESIGN. THE ABOVE DETAILS AS WELL AS INFORMATION ON THE PROGRAMME'S STRUCTURE ARE PUBLISHED IN THE STUDENT GUIDE.

Academic units develop their programmes following a well-defined procedure. The academic profile and orientation of the programme, the objectives, the subject areas, the structure and organisation, the expected learning outcomes and the intended professional qualifications according to the National Qualifications Framework for Higher Education are described at this stage. The approval or revision process for programmes includes a check of compliance with the basic requirements described in the Standards, on behalf of the Institution's Quality Assurance Unit (QAU).

Furthermore, the programme design should take into consideration the following:

- *the Institutional strategy*
- *the active participation of students*
- *the experience of external stakeholders from the labour market*
- *the smooth progression of students throughout the stages of the programme*
- *the anticipated student workload according to the European Credit Transfer and Accumulation System*
- *the option to provide work experience to the students*
- *the linking of teaching and research*
- *the relevant regulatory framework and the official procedure for the approval of the programme by the Institution*

Study Programme Compliance

The structure of the programme offers its students a range of core and elective courses. The Student Guide provides complete and concise information on the programme structure, curriculum and course content. The design of the curriculum has been developed considering the needs of the Greek industry and economy, based on information obtained through informal consultations with employers, monitoring employment and occupation status of graduates. Courses cover current technology developments (e.g., big data, new software tools), providing students with up-to-date understandings and skills. With the evolution of digital technology, aspects of data ethics should be considered. Some employers noted that students lack strong 'soft communication' and presentation skills. This can be partly facilitated through the group assignments in individual courses, more student presentations with an emphasis on conveying technical concepts to non-expert audiences. There are processes and regulations in place for periodic revisions of the curriculum that take into account the views of current students and graduates. Stakeholders and former students the Panel met strongly emphasised the close links and easy access they had to individual faculty, which is commendable.

The Department is actively seeking collaborations with industry, providing students for practical placement positions as well as conducting collaborative research which direct economic benefit.

Interviewed employers remarked that these practical assignments are often paid by the companies since the students do valued work. Specifically, for the programme, students are attractive for employers given the skills they develop on the programme. The programme quality and relevance were highlighted by the interviewed employers. Staff expertise is also valued, and further training programmes were mentioned as both ongoing and desirable. Interviewed employers stated that a key characteristic of the programme was the technical skills and understanding of how to apply theory to practice it provides its students. The ongoing review of the programme is supported through information that is collected by monitoring the output of the individual course evaluations done by the students for each course. The Department has followed an informal approach in the process of involving stakeholders in the collection of relevant information towards the design and updating of the study programme.

Panel Judgement

Principle 2: Design and Approval of Programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Involve the stakeholders in a comprehensive and structured manner in the development of the programme, as this will help keep the programme up to date and relevant.
- Considerations on digital and data ethics are given greater prominence in the programme.

Principle 3: Student- centred Learning, Teaching and Assessment

INSTITUTIONS SHOULD ENSURE THAT THE UNDERGRADUATE PROGRAMMES ARE DELIVERED IN A WAY THAT ENCOURAGES STUDENTS TO TAKE AN ACTIVE ROLE IN CREATING THE LEARNING PROCESS. THE ASSESSMENT METHODS SHOULD REFLECT THIS APPROACH.

Student-centred learning and teaching plays an important role in stimulating students' motivation, self-reflection and engagement in the learning process. The above entail continuous consideration of the programme's delivery and the assessment of the related outcomes.

The student-centred learning and teaching process

- *respects and attends to the diversity of students and their needs, enabling flexible learning paths;*
- *considers and uses different modes of delivery, where appropriate;*
- *flexibly uses a variety of pedagogical methods;*
- *regularly evaluates and adjusts the modes of delivery and pedagogical methods aiming at improvement;*
- *regularly evaluates the quality and effectiveness of teaching, as documented especially through student surveys;*
- *reinforces the student's sense of autonomy, while ensuring adequate guidance and support from the teaching staff;*
- *promotes mutual respect in the student - teacher relationship;*
- *applies appropriate procedures for dealing with students' complaints.*

In addition :

- *the academic staff are familiar with the existing examination system and methods and are supported in developing their own skills in this field;*
- *the assessment criteria and methods are published in advance;*
- *the assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary is linked to advice on the learning process;*
- *student assessment is conducted by more than one examiner, where possible;*
- *the regulations for assessment take into account mitigating circumstances;*
- *assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures;*
- *a formal procedure for student appeals is in place.*

Study Programme Compliance

Student learning is supported, and the student outputs in terms of placements and further careers indicates that the research-led teaching provides a high level of learning provision. The UP offers a wide range of courses, with a significant number (21) being electives. The required number has been reduced from 47 to 40 courses, following the recommendation of the 2014 assessment. A number of students interviewed by the EAAP mentioned that they take more courses than the number required for the degree, partly due to their interest in their subject matter and partly due to their effort to improve their grade point average.

The e-class platform provides students with early and timely access to course material. The information available to the student is comprehensive and allows them to make informed decisions on preparing for their courses and choice of electives. The information is updated annually, as well as on immediate and ad hoc basis if there are any unplanned changes.

Regular student surveys and an advisory curriculum committee are noticeable mechanisms in support of curriculum evolution and delivery. All courses, core and electives, are evaluated by students taking them every semester using the online system, with high participation rate. These provide useful feedback to the Department on student perceptions and opinions on material and delivery of individual courses as well as about the performance and teaching approach of the teaching team. Collected feedback is analysed by the teaching teams and the responsible department committees, which helps to improve and strengthen both teaching and student learning experiences. The interviewed current and former students highlighted the accessibility of the staff, and the support they personally provide to students who struggle in individual courses. This is indicative of the notable effort taken by the staff to improve the student graduating rates and time to graduate.

The flexible teaching has seen greater use of online learning. For improved learning, students are also increasingly encouraged to work in groups to perform projects designed on the principles of project-based learning. There has been an increase in the use of project and team-based assignment in most (70) of the available courses, and several (12) of the courses have it as the only student assessment form. When appropriate, students are also evaluated and credited on their contributions on project work and other learning activities with a final examination so that a fair assessment of the student performance is achieved. Students are given opportunities to perform practical internships in private companies and other institutions, many of which then are given employment there.

Panel Judgement

Principle 3: Student- centred Learning, Teaching and Assessment	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

EAAP found the Department to be fully compliant with Principle 3.

Principle 4: Student Admission, Progression, Recognition and Certification

INSTITUTIONS SHOULD DEVELOP AND APPLY PUBLISHED REGULATIONS COVERING ALL ASPECTS AND PHASES OF STUDIES (ADMISSION, PROGRESSION, RECOGNITION AND CERTIFICATION).

Institutions and academic units need to put in place both processes and tools to collect, manage and act on information regarding student progression.

Procedures concerning the award and recognition of higher education degrees, the duration of studies, rules ensuring students progression, terms and conditions for student mobility should be based on the institutional study regulations. Appropriate recognition procedures rely on institutional practice for recognition of credits among various European academic departments and Institutions, in line with the principles of the Lisbon Recognition Convention.

Graduation represents the culmination of the students' study period. Students need to receive documentation explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed (Diploma Supplement).

Study Programme Compliance

The Study Guide includes detailed information about the goals of the UP and describes several processes and services offered by DSIS and the University. It is available through the Department's webpage.

At the beginning of each academic year the Department offers an orientation meeting when students arrive in the campus. It is recommended to continue the orientation meeting and to encourage the participation of senior undergraduate and graduate students to offer their perspective.

Student mobility is encouraged via the ERASMUS programme, and through the practicum. The students usually take advantage of these opportunities in their 7th through their 8th semester of studies. The ERASMUS option has been underutilized in the sense of the small percentage of outgoing students (less than 10 each year) over the total number of active students. Further, the number of incoming students is particularly low (~3 per year). It is recommended that an effort should be made at the Department level to encourage students to apply. For example, instructors should advise and encourage students to have a closer look at the merits of the ERASMUS programme. Also, ERASMUS students should make presentations of their experiences and benefits to their fellow students at DSIS organized events. The practicum has grown in popularity over the last few years (from 36 students in 2016 to 50 in 2020). Based on feedback gathered by the EAAP from students and employers it is deemed quite successful. DSIS should make every effort in expanding the list of companies and organizations and strengthening its ties with them. DSIS should leverage its large alumni base that is employed by such companies/organizations in this effort. The student liaison office can also assist in this endeavour.

Graduates of the Department have been accepted in quality Masters and doctoral programmes in other National Institutions and abroad and many have found employment in the private, as well as in the public sector in Greece.

DSIS should come up with a formal mechanism to develop a working and fruitful relationship with employers that would be mutually beneficial. The annual Career Days event is a good development and the EAAP was happy to hear that awards have been established for companies participating in this event. Nevertheless, the EAAP recommends that DSIS explores the possibility of establishing a formal Industrial Affiliates programme. This can help the Department to raise funds for its programmes and also companies provide input for updates in the curriculum of the UP.

The ECTS is applied across the curriculum for the sake of students' recognition and certification. The department has made serious efforts to take into account student and faculty feedback. The workload of the courses is adjusted to the ECTS of international Standards.

DSIS informed the EAAP that assessment of many courses has expanded beyond the final exam, through multiple choice quizzes, and for selected elective courses through midterm exams and team projects. As noted above in the report, the EAAP recommends that this practice expands to cover all courses, thus offering a more holistic evaluation of students' performance. The availability of new technologies makes adoption of such practices significantly easier.

DSIS announces on the University's website the course evaluation criteria and other supplementary information.

As noted elsewhere in the report, the EAAP recommends establishing an alumni association that would help DSIS to maintain long term relationships with its former students.

Panel Judgement

Principle 4: Student Admission, Progression, Recognition and Certification	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- Enhance the orientation of incoming 1st year students to the UP.
- Actively encourage students to take advantage of the ERASMUS mobility programme.
- Strengthen ties with private employers through an Industrial Affiliates programme.
- Enhance the annual Career Days event.

- Actively encourage students to take advantage of the practical training.
- Establish an alumni association.

Principle 5: Teaching Staff

INSTITUTIONS SHOULD ASSURE THEMSELVES OF THE QUALIFICATIONS AND COMPETENCE OF THE TEACHING STAFF. THEY SHOULD APPLY FAIR AND TRANSPARENT PROCESSES FOR THE RECRUITMENT AND DEVELOPMENT OF THE TEACHING STAFF.

The Institutions and their academic units have a major responsibility as to the standard of their teaching staff providing them with a supportive environment that promotes the advancement of their scientific work. In particular, the academic unit should:

- *set up and follow clear, transparent and fair processes for the recruitment of properly qualified staff and offer them conditions of employment that recognize the importance of teaching and research;*
- *offer opportunities and promote the professional development of the teaching staff;*
- *encourage scholarly activity to strengthen the link between education and research;*
- *encourage innovation in teaching methods and the use of new technologies;*
- *promote the increase of the volume and quality of the research output within the academic unit;*
- *follow quality assurance processes for all staff members (with respect to attendance requirements, performance, self-assessment, training etc.);*
- *develop policies to attract highly qualified academic staff.*

Study Programme Compliance

The teaching staff of DSIS consists of quality researchers, all committed to their duties. The Department aims to hire qualified faculty and applies high standards in their promotion to the next rank.

In view of the many retirements, the number of faculty in the Department has substantially decreased (currently 17). As previously noted in the report, there are three hires starting in the Fall of 2021 and two more positions will become available in the following academic year. The EAAP notes that promotion to the next rank takes considerable time.

The faculty is fairly productive, publishing 135 papers in the 2016-20 time period according to data provided to the EAAP. The distribution of the ranks of the journals that these papers appear in is as follows: 29 in the first quartile (Q1), 52 in Q2, 34 in Q3, 10 in Q4 and 10 in non-ranked journals.

The EAAP recommends that DSIS establishes incentives for faculty members to target high ranking journals. For example, many Departments in foreign institutions provide research awards to faculty members whose research appears in the top ranked journals in their respective field.

Commitment to research and teaching should weigh in all hires, which appear to follow the criteria mandated by Greek law.

The Department should provide mentoring to its junior members. Specifically, the department should assign a “mentor” to each new hire or young professor to provide help and guidance with teaching, research, interactions with students, administrative issues, research possibilities

with people across campus who have similar or overlapping scientific interests, and, in general, with the academic culture of the university.

The student/faculty ratio is very high when compared to European and US standards. To alleviate this problem, the Department has requested 4 new faculty positions to replace the 4 members that retired recently as well as 1 member ETEP to replace the one who left in 2018. The EEAP strongly endorses this request and hopes that the University and the ME will approve these positions.

Linking teaching with research is an important mechanism for student stimulation. The EEAP suggests the establishment of a weekly or bi-weekly “undergraduate seminar”, where the speakers could be graduate and undergraduate students working on some research project with faculty members from the DSIS. This could also be an excellent forum for graduating students to present results from their practicum or other research-oriented project.

A minimum requirement for strengthening research is that the University offers support for the research activities of its faculty and, especially, the more junior ones. Currently, the University covers part of the expenses of an individual faculty member to participate, once per year, in a conference or workshop. The EEAP suggests that the University allocates a larger part of its budget towards increasing this support, especially for the scientific activities of the junior faculty members.

DSIS has developed an effective mechanism to keep track of all the annual activities of the faculty.

Panel Judgement

Principle 5: Teaching Staff	
Fully compliant	
Substantially compliant	X
Partially compliant	
Non-compliant	

Panel Recommendations

- Develop a mentoring mechanism for junior faculty members.
- Offer increased support for participation in conferences to junior faculty members.
- Provide incentives to faculty members to target highly ranked journals.
- Closely monitor time it takes for promotion to the next rank.
- Strengthen faculty ranks with new hires.

Principle 6: Learning Resources and Student Support

INSTITUTIONS SHOULD HAVE ADEQUATE FUNDING TO COVER TEACHING AND LEARNING NEEDS. THEY SHOULD –ON THE ONE HAND– PROVIDE SATISFACTORY INFRASTRUCTURE AND SERVICES FOR LEARNING AND STUDENT SUPPORT AND –ON THE OTHER HAND– FACILITATE DIRECT ACCESS TO THEM BY ESTABLISHING INTERNAL RULES TO THIS END (E.G. LECTURE ROOMS, LABORATORIES, LIBRARIES, NETWORKS, BOARDING, CAREER AND SOCIAL POLICY SERVICES ETC.).

Institutions and their academic units must have sufficient funding and means to support learning and academic activity in general, so that they can offer to students the best possible level of studies. The above means could include facilities such as libraries, study rooms, educational and scientific equipment, information and communications services, support or counselling services.

When allocating the available resources, the needs of all students must be taken into consideration (e.g. whether they are full-time or part-time students, employed or international students, students with disabilities) and the shift towards student-centred learning and the adoption of flexible modes of learning and teaching. Support activities and facilities may be organised in various ways, depending on the institutional context. However, the internal quality assurance ensures that all resources are appropriate, adequate, and accessible, and that students are informed about the services available to them.

In delivering support services the role of support and administrative staff is crucial and therefore they need to be qualified and have opportunities to develop their competences.

Study Programme Compliance

DSIS does not have its own budget and its needs are financed through the Central Budget of the University. Funding sources to support various Department activities and infrastructure needs come from the fees collected from the Masters programmes, from industry and research projects.

The EEAP recommends that DSIS leverages its connections with business and organizations to increase its funding that in turn would enable it to better fulfil its education and research missions.

The available space for teaching and laboratories remains limited despite efforts of the Department to improve infrastructure. Faculty members and administrative staff share the limited space in the University building. This problem will be largely mitigated when additional space becomes available in the new University building in Nikaia, where 7 new auditoriums will become available.

DSIS shares with other University units 12 teaching auditoriums, 6 teaching rooms, 4 laboratory rooms equipped with 72 computers that run various software packages and are used by both undergraduate and graduate students. The schedule of auditoriums and teaching rooms is available on the University website.

The teaching staff comprises of 23 members, out of which 17 are tenure track, and there are 6 administrative staff. The ranks of the tenure track faculty will be augmented in the coming academic year by 3 new members and another 2 in the near future (see discussion in Part A and Principle 5).

Faculty members and students have access to databases, scientific journals and distance learning services. They also have access to bibliography and other data sources through the University Library.

They have free access to various platforms to facilitate learning (e.g., e-class, Cisco Webex) through VPN access. The University provides additional wireless coverage in all its buildings.

The University also has a career office, whose services are available to DSIS students. There is a student counsellor and other support committees, including for the Erasmus programme, for practical training and also an Entrepreneurship Liaison Office.

The University also offers to selected students housing, meals and free transportation through a pass. There is also care for facilitating access to persons with special needs.

The impression of the EAAP is that the administrative staff is competent and helpful, and the students are broadly satisfied with the services offered.

Panel Judgement

Principle 6: Learning Resources and Student Support	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Enhance efforts to obtain additional external funding.
- Strengthen advising services to students interested in the practicum and the Erasmus programme.
- Improve care services provided to students especial to students with disabilities.

Principle 7: Information Management

INSTITUTIONS BEAR FULL RESPONSIBILITY FOR COLLECTING, ANALYSING AND USING INFORMATION, AIMED AT THE EFFICIENT MANAGEMENT OF UNDERGRADUATE PROGRAMMES OF STUDY AND RELATED ACTIVITIES, IN AN INTEGRATED, EFFECTIVE AND EASILY ACCESSIBLE WAY.

Institutions are expected to establish and operate an information system for the management and monitoring of data concerning students, teaching staff, course structure and organisation, teaching and provision of services to students as well as to the academic community.

Reliable data is essential for accurate information and for decision making, as well as for identifying areas of smooth operation and areas for improvement. Effective procedures for collecting and analysing information on study programmes and other activities feed data into the internal system of quality assurance.

The information gathered depends, to some extent, on the type and mission of the Institution. The following are of interest:

- *key performance indicators*
- *student population profile*
- *student progression, success and drop-out rates*
- *student satisfaction with their programme(s)*
- *availability of learning resources and student support*
- *career paths of graduates*

A number of methods may be used for collecting information. It is important that students and staff are involved in providing and analyzing information and planning follow-up activities.

Study Programme Compliance

DSIS collects periodically data regarding the student's population profile, progression, success, and satisfaction with the UP and courses via student evaluations and also about the practicum. The completion rate of the surveys is adequate, but DSIS should encourage students to participate in the course/instructor evaluation process in larger numbers.

The EEAP suggests that the Department establishes and utilizes an Alumni Association in order to develop efficient mechanisms for the collection of data regarding the employment and carrier paths of its former students.

Panel Judgement

Principle 7: Information Management	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Explore avenues to increase feedback from the students.
- Establish an Alumni Association and utilize it to collect information about the employment and carrier paths of former students.

Principle 8: Public Information

INSTITUTIONS SHOULD PUBLISH INFORMATION ABOUT THEIR TEACHING AND ACADEMIC ACTIVITIES WHICH IS CLEAR, ACCURATE, OBJECTIVE, UP-TO-DATE AND READILY ACCESSIBLE.

Information on Institution's activities is useful for prospective and current students, graduates, other stakeholders and the public.

Therefore, institutions and their academic units provide information about their activities, including the programmes they offer, the intended learning outcomes, the qualifications awarded, the teaching, learning and assessment procedures used, the pass rates and the learning opportunities available to their students, as well as graduate employment information.

Study Programme Compliance

The Department's own webpage is professionally designed. It is user-friendly and contains complete and useful information not only for students but for anyone interested to know about the educational programme and the structure of the Department. Specifically, the structure of the programme, mode of attendance, degrees awarded, and the CVs of faculty are available online (both in Greek and in English). Nevertheless, the Department should make an effort to have consistent versions in both languages. For example, the web-pages of some faculty are much more complete in the Greek version than in the English one. Brief course outlines are also available online. They include a description of the applicable assessment method. The applicable Policy for Quality Assurance is also available online. The published information appears to be up to date, clear and easily accessible. The Department's webpage is updated frequently. It was not obvious to the Panel members whether the Department has any presence in social media such as LinkedIn, Twitter and Facebook.

The visibility of the Department can also be improved if an annual newsletter becomes available. It will provide a platform to inform the public, employers, current students and graduates about the annual activities of the DSIS.

Panel Judgement

Principle 8: Public Information	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Keep both the Greek and the English versions updated.
- It would enhance the communication with its constituents if the Department created a presence in some social media, in the case it does not already have one.
- Prepare an annual newsletter.

Principle 9: On-going Monitoring and Periodic Internal Review of Programmes

INSTITUTIONS SHOULD HAVE IN PLACE AN INTERNAL QUALITY ASSURANCE SYSTEM FOR THE AUDIT AND ANNUAL INTERNAL REVIEW OF THEIR PROGRAMMES, SO AS TO ACHIEVE THE OBJECTIVES SET FOR THEM, THROUGH MONITORING AND AMENDMENTS, WITH A VIEW TO CONTINUOUS IMPROVEMENT. ANY ACTIONS TAKEN IN THE ABOVE CONTEXT SHOULD BE COMMUNICATED TO ALL PARTIES CONCERNED.

Regular monitoring, review and revision of study programmes aim to maintain the level of educational provision and to create a supportive and effective learning environment for students.

The above comprise the evaluation of:

- *the content of the programme in the light of the latest research in the given discipline, thus ensuring that the programme is up to date;*
- *the changing needs of society;*
- *the students' workload, progression and completion;*
- *the effectiveness of the procedures for the assessment of students;*
- *the students' expectations, needs and satisfaction in relation to the programme;*
- *the learning environment, support services and their fitness for purpose for the programme*

Programmes are reviewed and revised regularly involving students and other stakeholders. The information collected is analysed and the programme is adapted to ensure that it is up-to-date. Revised programme specifications are published.

Study Programme Compliance

There is a procedure in place for the Department's self-assessment of the study programme. MODIP has adopted a model for the internal review of the University's programmes. OMEA is responsible for the internal evaluation of the programme. It collaborates with MODIP, faculty and staff, current students and alumni, in collecting and evaluating quality data from various sources. More specifically, OMEA takes into consideration various quality indicators, student evaluations, evaluations of student internships and feedback from employers and other constituents. OMEA then writes an annual self-evaluation report that submits to MODIP for discussion and constructive feedback, which OMEA incorporates in the next programme revision.

The UP underwent a major curriculum revision in 2017 and implemented in the 2018-19 academic year. There is an ongoing monitoring by OMEA of various quality metrics and how these relate to quality targets set by OMEA. When there is a discrepancy between the two, or slow progress towards achieving a target, OMEA intervenes with corrective actions.

DSIS goal is to ensure that students are exposed to the recent developments and trends in the fields of statistics, actuarial science and other related fields. In addition, and in order to further enhance the student learning experience and motivation to excel, the department has undertaken a number of initiatives such as: the use of laboratories with up-to-date databases and mathematics/statistics software, the invitation of executives from the industry to give lectures during class, the organization of conferences, scholarships and awards, the assignment of academic advisors for first-year students and the use of in-class projects.

Panel Judgement

Principle 9: On-going Monitoring and Periodic Internal Review of Programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

The EEAP commends the Department for its monitoring process and strongly recommends its continuation.

Principle 10: Regular External Evaluation of Undergraduate Programmes

PROGRAMMES SHOULD REGULARLY UNDERGO EVALUATION BY COMMITTEES OF EXTERNAL EXPERTS SET BY HAHE, AIMING AT ACCREDITATION. THE TERM OF VALIDITY OF THE ACCREDITATION IS DETERMINED BY HAHE.

HAHE is responsible for administrating the programme accreditation process which is realised as an external evaluation procedure, and implemented by a committee of independent experts. HAHE grants accreditation of programmes, with a specific term of validity, following to which revision is required. The accreditation of the quality of the programmes acts as a means of verification of the compliance of the programme with the template's requirements, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees.

Both academic units and institutions participate in the regular external quality assurance process, while respecting the requirements of the legislative framework in which they operate.

The quality assurance, in this case the accreditation, is an on-going process that does not end with the external feedback, or report or its follow-up process within the Institution. Therefore, Institutions and their academic units ensure that the progress made since the last external quality assurance activity is taken into consideration when preparing for the next one.

Study Programme Compliance

The previous external evaluation was carried out in February 2014 and was provided to the EEAP (it is also available on the Department's webpage). DSIS is aware of the importance of the External Evaluation Review and its potential contributions to improvement. Various stakeholders appear to be actively engaged in the programme review. The 2014 report made a number of recommendations. Some of these recommendations were beyond the Department's jurisdiction. The ones that the Department could implement were: i) the reduction of the number of courses a student needs to take to graduate, ii) a continuous monitoring and assessment of the courses, iii) the update of course bibliography and software, iv) the introduction of teaching and research awards and v) the use of Ph.D. candidates as teaching assistants. The Department has been very responsive and effective in implementing these recommendations

After the submission of the 2014 evaluation report, the Department considered the committee's recommendations and has implemented a large number of them. The actions that the Department has taken to achieve its goals, and the degree of success/compliance toward the achievement of these goals up to this point, appear in the Department's report that was provided to the EEAP.

Panel Judgement

Principle 10: Regular External Evaluation of Undergraduate Programmes	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

The EEAP found DSIS to be responsive to the recommendations of the external evaluation report and the faculty open to constructive suggestions from external sources including industrial/social partners, collaborators, and evaluators.

PART C: CONCLUSIONS

I. Features of Good Practice

- DSIS was responsive to the recommendations of the 2014 report. Specifically, it reformed the undergraduate programme in 2017, reduced the number of courses for the degree to 40, streamlined the directions of elective courses, added recitation sessions and labs taught by Ph.D. students to many courses.
- Introduction of new courses aligned with Data Science (e.g., analysis of Big Data, more applied courses with new software tools, etc.).
- The practicum has become an elective course that can be taken for credit.
- Welcome event to incoming 1st year students, career days, faculty advisors for the five Directions of elective courses, active office to connect students to companies (“γραφείο διασύνδεσης”).
- Extensive use of electronic resources (e.g., e-class).
- Office for psychological support, medical office, presence in the ERASMUS programme,
- Leveraging capabilities offered by new technologies: e-class, access to software and library material through VPN, etc.
- DSIS active in organizing international events (conference, workshops, offering seminars).
- DSIS supportive of its faculty members to attend conferences and also of its PhD students.

II. Areas of Weakness

- Space continues to be an issue. The new Nikaia building would be very helpful in addressing this issue.
- Excessively large number of incoming students, significantly above DSIS request for 150. The EAAP acknowledges that this constitutes a structural issue that only the Ministry of Education can effectively address.
- Lack of budget for DSIS. Revenue from the Masters programmes fees are helpful. Nevertheless, the Department needs to be more aggressive in obtaining external funding through research grants, contracts with companies and sponsorships by industry.
- The structure of the tenured faculty is currently imbalanced: there are two full professors, 12 associate professors and 3 assistant professors. Further, the EAAP is concerned with the high number of years a large fraction of the faculty spends in each rank.
- Faculty research productivity good, but unequally distributed. The quality of publications is good, but there is room for improvement.

III. Recommendations for Follow-up Actions

- Continuous updates of the UP by refreshing the syllabus of courses, introducing more data science focused courses and linking courses' content to business applications. Introduce courses in scientific computing and data ethics.
- Adopt a holistic viewpoint of students' course performance through quizzes, midterms and (group) projects.
- Offer recitation sessions and labs to more courses.
- Establish an alumni association and keep track of all alumni students; the current practice is broadly based on personal connections with specific faculty members
- Establish an industrial affiliates programme.
- Move more aggressively to e-learning; possible avenues include creation of certificate programmes for retraining people in industry that can serve as an additional source of revenue for DSIS.
- Develop mechanism to further enhance presentation and communications skills of students.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **2, 3, 6, 7, 8, 9, and 10.**

The Principles where substantial compliance has been achieved are: **1, 4, and 5.**

The Principles where partial compliance has been achieved are: **None.**

The Principles where failure of compliance was identified are: **None.**

Overall Judgement	
Fully compliant	X
Substantially compliant	
Partially compliant	
Non-compliant	

The members of the External Evaluation & Accreditation Panel

Name and Surname

Signature

- 1. Professor George Michailidis (Chair)**
University of Florida, Gainesville, Florida, USA

- 2. Professor Jannis Angelis**
KTH Royal Institute of Technology in Stockholm, Stockholm, Sweden

- 3. Mr. Stelios Mastrogiannakis**
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- 4. Professor Konstantinos Serfes**
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