



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
HELLENIC REPUBLIC



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Ανώτατης Εκπαίδευσης**
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Accreditation Report
for the Undergraduate Study Programme of:
Biology
Institution: Aristotle University of Thessaloniki (AUTH)
Date: 6 March 2021

Report of the Panel appointed by the HAHE to undertake the review of the Undergraduate Study Programme of **Biology** of the **Aristotle University of Thessaloniki** 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 **Biology** of the **Aristotle University of Thessaloniki** (AUTH) comprised the following five (5) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

- 1. Prof. Thimios Mitsiadis** (Chair)
Universität Zürich, Switzerland
- 2. Prof. Emeritus Spiros Agathos**
Université Catholique de Louvain, Belgium
- 3. Prof. Styliani-Anna (Stella) Tsirka**
Stony Brook University, United States of America
- 4. Assoc. Prof. Sophia Tsoka**
King's College London, United Kingdom
- 5. Dr. Nicholas Ktistakis**
Babraham Institute, United Kingdom

II. Review Procedure and Documentation

The Hellenic Authority for Higher Education (HAHE) formed an external and independent panel of experts to conduct an assessment of the compliance of the study programme of Biology of the Aristotle University of Thessaloniki (AUTH) in accordance with the HAHE Quality Assurance requirements (laws 4009/2011 & 4653/2020). The assessment was conducted through document reviews and online interviews. The method used was an evidence-based process centered on a sampling of the Department's activities and it was aimed at evaluating the fulfilment of the HAHE requirements of the relevant Quality Standard of the Undergraduate Study Programme (Integrated Master) and commenting on its compliance, effectiveness and applicability for the scope of the requirements. The information provided by the Department was assumed to be factually correct.

Due to the unprecedented circumstances of the Covid-19 pandemic, the entire evaluation and accreditation exercise did not include a site visit of the Department and University campus in Thessaloniki but was carried out remotely using the Zoom platform.

On February 12, 2021 the External Evaluation and Accreditation Panel (EEAP) received from HAHE the Accreditation support material from the HAHE Cloud link which contained the following:

1. Biology – Aristotle University of Thessaloniki Material, consisting of the documents:

- B0. Contents
- B1. Proposal of Academic Accreditation
- B2. Quality Policy of Undergraduate Study Programme
- B3. Study Guide
- B4. Regulations
 - B4.1 Regulation of Undergraduate Programme
 - B4.2 Regulations of Laboratory Work
 - B4.3 Regulation of Computer Work Areas
 - B4.4 Regulation of Field Work
 - B4.5 Regulation of Diploma Thesis
 - B4.6 Regulation of Practical Internship
 - B4.7 Regulation of Library
 - B4.8 Regulatory Decisions
- B5. Course Outlines
- B6. Quality Targeting
- B7. Model Questionnaires to Students for Course Evaluation and Results
- B8 Internal Evaluation of Biology Programme
- B9. Quality Data OPESP
- B10.2 Diploma Supplement
- B10.3 Academic Statistics 1
- B10.4 Data of Student Directory
- B10.5 Mobility – Erasmus+ Programme
- B10.6 Academic Statistics 2
- B10.7 Evaluation of Infrastructures
- B10.8 Evaluation of Practical Internship

- B10.9 Research Output
- B10.10 Digital Services
- B10.11 Distinctions
- B10.12 International Rankings
- B10.13 Congratulatory Letter

2. HAHE Material, containing the documents:

- European Qualifications Framework
- Accreditation Guide
- P12a. Guidelines for the EEA Panel
- P13. Mapping Grid
- P14. Template for the Accreditation Report
- Standards for Quality Assurance of Undergraduate Programmes
- ABBREVIATIONS
- Quality Indicators Dept Biology 2015-2016
- Quality Indicators Dept Biology 2016-2017
- Quality Indicators Dept Biology 2017-2018
- Quality Indicators Dept Biology 2018-2019
- Quality Indicators Undergraduate Programme Biology 2015-2016
- Quality Indicators Undergraduate Programme Biology 2016-2017
- Quality Indicators Undergraduate Programme Biology 2017-2018
- Quality Indicators Undergraduate Programme Biology 2018-2019

On Monday March 1, 2021, an orientation meeting via Zoom was organized by HAHE's Director General Dr. Christina Besta addressing the procedures to be followed during the virtual site visit and subsequent report drafting. During this meeting, a thorough presentation was made on the quality assurance (QA) mission and guidelines of the accreditation process were given.

In view of getting to know each other and establishing a *modus operandi* regarding the exercise of accreditation, the EEAP members met remotely on the same day, following the presentation and discussion with Dr. Besta.

On Tuesday March 2, 2021, the EEAP Review of the Biology undergraduate study programme (UP) started formally via Zoom at 15:00 (Athens time). In the first part of this virtual meeting, the AUTH Vice-rector and president of MODIP Prof. D. Kovaios familiarised the Panel with the AUTH facts and figures, and the Head of the Biology Department Prof. M. Yangou gave an overview of the Department's and UP's origins, evolution and current status. The different aspects of compliance with the accreditation principles (A1-A10) were presented by OMEA Head Prof. E. Voultsiadou and discussed with her and other OMEA members of the Department, including Prof. A. Kallimanis, Asst. Prof. I. Kappas, Assoc. Prof. D. Kontoyiannis, Assoc. Prof. A. Tsikliras and Assoc. Prof. I. Tsiripidis with the presence and supporting data from MODIP representative Prof. A. Goulas plus MODIP staff Ms A. Tzaneraki (MODIP secretariat) and K. Aivazidis (MODIP Quality Management Official). The EEAP subsequently had a teleconference with selected faculty members who have distinct roles in the Department that included five Professors (Dean of Natural Sciences Ch. Chintiroglou, D. Youlatos, M. Arsenakis, Th. Abatzopoulos), three Associate Professors (A. Triantafyllidis, K. Vlachonasios, A. Staïkou), one Assistant Professor (V. Drosopoulou) as well as one EDIP (M. Tsiadouli). Finally, the EEAP met

with 11 undergraduate students (one of the 2nd year; two of the 3rd year; seven of the 4th year; one of the 5th year).

The following day, Wednesday March 3, 2021, starting at 15:00, the EEAP had an on-line tour of classrooms, lecture halls, libraries, laboratories, and other facilities including discussions with Professors A. Lazou, Th. Lanaras, Assoc. Professors E. Antonopoulou, E. Panteris, D. Bobori and E. Michaloudi, Asst. Professor S. Gkelis and administrative staff members S. Kioutsiouki-Keppa,

A. Vasileiadou and Z. Veneti. The EEAP had been previously given the links to access the videos on AUTH facilities and Department facilities.

The next virtual meeting was between the EEAP members and ten alumni of the Biology study programme who work in various sectors (Dr N. Kyrpides, Head of Programme and Group Leader, US DOE Joint Genome Institute, USA; Dr C. Demetriades, Group Leader, Max Planck Institute for Biology of Ageing, Cologne, Germany; Dr I. Keklikoglou, Lecturer, Queen Mary Univ. London and Group Leader, Barts Cancer Institute, UK; Dr G. Papagregoriou, Senior Scientist, CY-Biobank Research and Innovation Center of Excellence, Univ. Cyprus, Nicosia; Dr Ch. Papista, Medical Science Liaison, Sanofi Genzyme, Quito, Ecuador; Dr D. Garyfallos, Research Associate, Univ. Cambridge, UK; Dr D. Dimarchopoulou, Research Associate, Univ. Rhode Island, USA; Dr. S. Papadimitriou, Research Associate, Univ. libre de Bruxelles, Belgium; Dr K. Rouskas, Research Associate, Institute of Applied Biosciences (INAB), Centre for Research and Technology Hellas (CERTH), Thessaloniki; Dr F. Ntana, Research Associate, Aarhus Univ., Denmark).

In the next teleconference, the EEAP discussed with ten social partners and employers of the study programme's graduates (Dr G. Katopodis, Board of Directors, Panhellenic Union of Bioscientists, Secondary School Teacher, Athens; Dr A. Magoulas, Director, Hellenic Centre for Marine Research, Athens; Dr A. Zdragas, Researcher-Manager, Veterinary Research Institute, Greek Agricultural Organization 'Demeter', Thessaloniki; Dr A. Makris, Research Director, INAB, CERTH, Thessaloniki; Dr E. Skoulakis, Deputy Director, Institute for Fundamental Biomedical Research (IBFR), Biomedical Sciences Research Centre "Alexander Fleming", Vari, Greece; Dr E. Yannaki, Director, Gene and Cell Therapy Centre, Hematology Dpt - BMT Unit, George Papanikolaou Hospital, Thessaloniki; Dr G. Mertzanis, Scientific Coordinator, Environmental NGO Kallisto; Dr M. Zouloumidis, CEO, ALGAE SA Company (Spirulina), Nigrita, Serres; Dr A. Xeferis, Laboratory Director, Eurogenetica M.S.A., Thessaloniki; Dr S. Lymperi, Head, Andrology Laboratory, Euromedica, Thessaloniki).

Lastly, after a debriefing among EEAP members in private, the Panel provided an informal overview of their preliminary impressions and assessment of the Biology study programme to the Vice-Rector of AUTH Prof. D. Kovaio, the Head of the Department Prof. M. Yangou and representatives of OMEA (Professors E. Voultsiadou and A. Kallimanis, Assoc. Professors D. Kontoyiannis, A. Tsikliras and I. Tsiripidis, and Asst. Professor I. Kappas) and MODIP (Prof. A. Goulas, staff members Ms A. Tzaneraki and Mr K. Aivazidis) and discussed their major findings and recommendations.

Upon completion of the two days of virtual meetings at AUTH, the EEAP was glad to note a positive atmosphere and a willingness of the Department to cooperate and support the University's QA policy at all levels with a commitment to maintaining and further upgrading the

quality standards of the Department and the University in compliance with HAHE. The EEAP would like to thank the Department and University Administration as well as all Faculty members for their cooperation and fruitful discussions.

During the following three days (March 4-6, 2021), the EEAP members had remote online meetings for the completion of the draft Accreditation Report (AR).

The EEAP requested additional materials: 1. A list with the recruitment and promotions of the Faculty members during the last five years; 2. List of the courses (lectures) that are given by each faculty member plus the number of students attending each of these courses; 3. Question on the number of students participating in each practical exercise; 4. Information about the animal facilities. Size of room(s), number of animals, number of Faculty members working with mice, regulations, ethical restrictions etc. This was delivered by the Department in time for the material to be considered during the writing of the AR.

III. Study Programme Profile

The Department of Biology is part of the School of Sciences of the AUTH and is located in the University's central campus in Thessaloniki. It was founded in 1973 and accepted its first undergraduate students in the academic year 1973-1974. The undergraduate study programme is designed with the aim of offering high-quality comprehensive studies in Biology at all levels of life organization, from molecules and genes through cells and organisms to populations and ecosystems. The programme covers a broad range of areas within Biology and its sub-disciplines, including both basic and applied life sciences. It aspires to provide the students with both a strong theoretical background and practical training in all fields of Biology thanks to its flexibility and versatility. The programme amounts to a total of 240 ECTS over 4 years (8 semesters) and upon completion it leads to a Diploma in Biology together with a Diploma Supplement in accordance with EU regulations. The undergraduate study programme starts with basic courses in the first 4 semesters and continues with specialisation courses in the remaining 4 semesters, where the students can follow one out of three informal orientations and perform a final diploma thesis project. The latter is carried out during the 4th year (semesters 7 and 8) and is based on research.

The great majority of the ~150 incoming students per year are admitted with high qualifications (typically > 16000 points in the national entry examination) and the average actual duration of their studies to obtain the diploma is 5.5 years with an average grade of 7.59 (out of 10). There were 633 registered undergraduate students actively pursuing their studies (ενεργοί) in the academic year 2018-2019 (study duration < v+2 years where v = 4) and 159 students had gained entrance in the 1st year in 2020 compared to 136 students who had been admitted in 2016.

Since its previous external evaluation in 2010, the Biology Department has shown a good academic progression as evidenced by the increasing number of faculty members, high-impact research publications and corresponding citations, participation in competitive research programmes and good rankings among similar programmes in Greece. During the same period, however, the Department has suffered a major decrease in financial support from the government because of Greece's economic crisis.

The students graduating from the Biology study programme are well qualified and find employment in academic institutions, research centres, industries, biomedical laboratories, and other organisations in the public and private sectors both in Greece and abroad. Despite multiple efforts over the years, the Biology diploma does not confer recognized professional qualification (Επαγγελματικά δικαιώματα) within the Greek labour market. A further career outlet for students is in pedagogical and teaching competence, upon completion of a corresponding qualification module. Finally, the Biology Department at AUTH offers advanced studies (2nd and 3rd cycle): three postgraduate programmes of its own (Biology Applications; Conservation and Biological Resource Management; Integrated Management of River Basins and Coastal Areas), three postgraduate programmes with other Departments (Complex Systems

and Networks; Environmental Education; Paleontology-Geobiology), doctoral studies as well as post-doctoral research in all the above-mentioned fields.

Most of the Department facilities reside in a 10-floor building in the main AUTH campus with classrooms, offices, teaching and research laboratories, secretariat, library spaces and museum collections. The Department is in the process of creating additional modern facilities at the Centre of Biological Applications in Angelochori. Classrooms as well as teaching and research laboratories are generally adequate and contain up-to-date equipment. However, both the teaching and the research spaces available require improvement and redesign in view of evolving needs.

The Department is composed of 57 Faculty members (49 Teaching and Research Staff - ΔΕΠ and 8 Laboratory Instruction Staff - ΕΔΙΠ) together with 8 administrative and support employees but no technical laboratory staff (ΕΤΕΠ). The current demographics of the Faculty members attest to a very experienced human resource (50% of them have at least 15 years of service). In addition to their teaching duties, the Faculty are engaged in research and outreach service to society.

The Department aspires to strengthen its links to a range of stakeholders and society-at-large through well-targeted initiatives such as the alumni-driven social network *MetaBioNet*. Through this, the undergraduate students are encouraged to participate in a number of scientific and social events and to find outlets for future employment or further studies. Another distinction of the Department is its central role in publishing an open-access international peer-reviewed scientific journal called *Journal of Biological Research - Thessaloniki*, which has been steadily increasing its impact factor (now around 2.4).

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 structure and organization of the study programme appears suitable to the focus of the Department's teaching programme objectives. The learning objectives, outcomes and qualifications are in accordance with the European and the National Qualifications Framework for Higher Education. There are considerable efforts and plenty of enthusiasm by the Faculty members to promote high quality and effectiveness of teaching, with the ultimate goal of equipping graduates with skills allowing them to be successful in their careers and workplace as well as in their further graduate training. Within each course the syllabus appears to be dynamic

with attention paid towards incorporating material on new trends and developments in Molecular Biology, Evolution Biology, Genetics, Marine Biology, Bioinformatics and -omics analyses. Recently hired faculty members make positive contributions in this regard. External faculty members with related academic backgrounds have undertaken educational efforts in several courses, without however adjusting these courses according to the needs of Biology.

All Faculty members indicated consistent efforts to promote quality and effectiveness of teaching. The Department hosts some seminars and workshops open to Faculty members, students and the public and these assist faculty with national and international visibility. Project-based approaches that allow students to work in groups and analyse recent peer-reviewed publications in the field are encouraged. This enhances the critical thinking, self-confidence, and communication skills of the students.

Although attendance to some theoretical lecture courses is not mandatory, perhaps new teaching and performance evaluation practices can be designed to enhance attendance. Attendance in laboratory courses is mandatory.

Larger core classes still largely rely on a single Final Examination. However, incorporation of midterms evaluations or other assignments is valuable in allowing a more even and fair distribution of the grade.

Faculty members have not attained high performance in attracting funds from competitive international organizations for research programmes. Successful fundraising will guarantee the visibility of the Department and constitutes a significant requirement for the participation of students in research-related projects (Practical Exercise / Internship and Diploma-related projects), which are experimentally based. The equipment in the research laboratories is modern, of high standards, allowing exposure and training of undergraduates in state-of-the-art instruments and analytic procedures. The research programmes appear to be effectively linked with the undergraduate teaching and training programme.

The labour market for AUTH students involves the agrochemical and biomedical industries. In addition to their degree in Biology, students have the opportunity to take courses focusing on pedagogical and teaching preparedness that can satisfy requirements for the graduates who wish to teach in the public and private sectors. A good part of the graduates pursue further postgraduate education and many appear to have excelled in their subsequent academic or industry-based placements (within Greece and - importantly - abroad).

Faculty members and administrators of the Department appeared enthusiastic and strongly committed to ensure high quality of student support services. Advising is currently provided on an *ad hoc* basis and when a student expresses the need for academic guidance.

Services are readily available and actively monitored to ensure that students receive all necessary documents (e.g., provision of hard copy Diplomas and transcripts) by the

administration without unnecessary delays. Some transcripts and Diplomas are also translated in English when needed.

There are well-established procedures to address student welfare issues, such as legal staff for students' consultation in case of extenuating or troubling circumstances.

Annual review procedures and internal audit of the quality assurance system of the AUTH undergraduate programme are being managed collaboratively with the OMEA and MODIP. Faculty members should be involved in advising students for the planning/restructuring of courses and other academic issues as these may arise. These advising responsibilities could be distributed equally among the teaching Faculty.

Students evaluate the quality of lectures electronically. Statistical analyses of the evaluation data are available. Electronic evaluations have been instituted some time ago, and it is easy to assess their effectiveness.

Panel Judgement

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

Panel Recommendations

- Target objectives should include longer-term plans, preferably over the next five to ten years, to clearly articulate the Department's strategic plan and adjust it as needed. The academic/thematic identities of the training programme must be revisited to incorporate more modern biological fields where an increase of interest is clearly perceived in the last few years, such as Medical Biology and Computational Biology.
- Newly instituted programmes and practices, the teaching effectiveness seminars and workshops, the legal staff to receive and address student grievances need to be monitored for their effectiveness and adjusted.
- It may be important to discuss the distribution of student advising duties and assess the effectiveness of the current plans.
- Adjustment of student evaluation methods to reduce reliance on a single Final Examination may be worth extending to additional subjects by the teaching faculty. Wider distribution of

the student-grading scheme may enhance student learning, reduce failure rate and enhance the likelihood of timely degree completion by the students.

- It would be useful if most of the presentations could be given in English to facilitate student preparedness for participation in international venues and Erasmus or COST student exchange purposes.

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 formulated departmental strategy aims to make the Department the centre of excellence in teaching and research in fields that cover three broad areas of Biology. Although this strategy is well designed and executed, a broader long-term vision is required so that the programme maintains its leading status. Several new Biological Disciplines have emerged the last few years, and the Institutional strategy should adapt to these trends. For example, the incorporation / reinforcement of Computational Biology studies should be enacted. Similarly, owing to the presence of the large Medical Faculty of AUTH, it is suggested to the Department to increase the synergies in the field of Medical Biology.

The student programme is based on international standards to offer both theoretical and practical knowledge, to introduce modern technologies and methodologies through a series of laboratory exercises, practical exercise/internship, and a diploma work, all of them needing the active involvement of the students. Therefore, the programme aims to engage students in participating in the planning of new developments of the curriculum. Unfortunately, although student representatives are invited to participate in such strategic committees, their regular

presence is not always fulfilled. This lack of engagement needs to change through meaningful discussions between Faculty members and students. Many students take more than four years to complete their studies, and one might wonder if this is also due to reduced student engagement.

The academic partners as well as a small number of stakeholders from the labour market mentioned that the AUTH graduates were very well trained, reliable, and enthusiastic. This active engagement of the stakeholders with the students continues and the good training of the students is widely appreciated. However, the sample of stakeholders was rather small and therefore a larger picture of the potential cooperation and interaction with the labour market stakeholders could not be obtained. Stakeholders and Academic partners mentioned the existence of severe and unacceptable administrative and bureaucratic obstacles outside of the AUTH (State-related) and pointed out that the realization of these fruitful and visionary interactions is strongly compromised or entirely prohibited. Faculty members mentioned similar sorts of problems linked to heavy bureaucracy, unrelated to the AUTH, which together with the necessity of investment in patent development explains the small number of patents filed by Faculty members. The EEAP believes that there is a considerably increasing potential in exploring opportunities with industrial and social partners, both locally and internationally. Therefore, a quick and efficient solution should be elaborated between the AUTH and the State authorities by modifying the existing administrative rules that will thus allow exploring the great potential of AUTH in the labour market.

The programme is structured by semesters. Although the majority of the programme is rational, well designed and articulated, in some cases it lacks obvious staging (e.g., prerequisite courses that need to be successfully finished before other courses are taken). Similarly, several courses (e.g., statistics) are given very early, when it is not possible to be appreciated and understood by the students.

The Study Guide is up-to-date, and the programme of studies is revised on a regular basis. The curriculum revision procedures are expected to involve students' consultation, but this is compromised very often by the absence of the students' representatives.

Special effort is made by the Department and the AUTH to accommodate students with special needs (e.g., mobility problems), and this effort is commendable and highly appreciated by these students. These efforts to accommodate this extremely important social group are continuous and restless.

The programme follows the European Credit Transfer (ECTS). Although the workload is estimated high, the EEAP has not received any serious complaints about the workload from the Faculty members or the students. The EEAP estimates that several traditional courses should be revisited by incorporating all new developments in these fields.

3–6-month training sessions for the students are performed in external companies or Academic Institutions around Greece. This initiative is highly appreciated by both students and instructors.

Teaching and research activities are pursued through the Diploma project that is experimentally oriented and requires completion of a research project. Complementary actions involve summer training and Erasmus programme exchanges. Most of the students requested increased periods of laboratory/research activities, and the EEAP suggests that the Faculty try to steer a larger proportion of students in research-driven activities through Erasmus, COST actions, and other similar initiatives.

There are procedures in place to officially implement changes and approve them in the General Assembly. The structure of the study programme is rational and clearly articulated, and the Student Guide is complete, concise and appropriate. The Student Guide is updated every year and there is a plan to revise the study programme on a regular basis. The curriculum revision procedures do not involve an active consultation with students or representatives.

Panel Judgement

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

Panel Recommendations

- Other methods of student engagement should be explored, such as tutorials, new pedagogical methods of learning, and videoconferences with successful and established alumni members from abroad etc.
- One-day events (career days) with exhibitions allowing the students to familiarize themselves with actual job opportunities (academics, industrial, secondary education, medical orientation etc.) should be organized by the Department involving the active participation of entrepreneurs.
- New stakeholders should be clearly identified. The representation of stakeholders was limited compared to the breadth of the programme. We could foresee strategic stakeholder alliances with environmental and agro-alimentary agencies, the biomedical and

pharmaceutical sector, and others. EEAP suggests that some strategic partners include local government.

- The Department aims to cover a large scientific area of study. It is realistically impossible that students would become experts in all areas of Biology, especially at times when Biology tremendously expands, and new challenging disciplines arise constantly. While the EEAP encourages the mission of the Department to serve the study of Evolution Biology, Molecular Biology, Marine Biology, Biodiversity, Genetics, -Omics in broad terms, the coursework must be significantly lightened, aiming to introduce advanced concepts and not to lead to repetitions and technical specialization of the students. It should aim to engage and inspire and not to provide detailed knowledge that could be acquired during graduate courses. This philosophy should be reflected both in mandatory and elective courses.
- The EEAP discussed the possibility of including courses on the general principles of Computational Biology and Medical Biology early during the curriculum, and preferably during the first two semesters. By contrast, it is advised that the statistical courses move towards the late semesters. Finally, the principles of Evolution should be taught during the first two semesters since they underpin all other biological disciplines.

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

Curriculum design at the Department of Biology at AUTH has been implemented with a view to reflect a wide-ranging spectrum of topics within Biology and its sub-disciplines. The EEAP appreciates the effort of the Department to educate its students in a variety of subjects. Indeed, students have praised the multidisciplinary training that they have been exposed to, which included a good amount of practical experience. However, the EEAP has noted that some subjects could be consolidated to make room for topics that are cutting-edge (Computational Biology, Medical Biology) or underpin multiple subjects (Evolutionary Biology).

Biology has connections to multiple disciplines. The curriculum should not only reflect such connections, but appropriate mechanisms should be put in place to allow students to choose

their orientation flexibly and delve deeper into their preferred subject. Such flexibility has been implemented in the third year of study where students can choose one of three specialisations. The EEAP would like to encourage furthering this scheme into the fourth year of study and through a specific mention of the specialisation in the diploma supplement.

Students are well informed of the available choices through the Study Guide and are encouraged to follow individualised and flexible training through a Diploma thesis research project (optional) and practical training internship (also optional).

The EEAP notes student surveys being carried out for each academic module in a regular and transparent manner. There is a system of evaluation of each academic module in place via questionnaires, which is used to advise curriculum amendments.

With regards to assessment, the EEAP notes flexible examination procedures (multiple choice, short written answers, problem-solving exercises, practical examination) that reflect well the learning outcomes of the subject taught. The EEAP notes an absence of exam result scrutiny, where student performance in subjects examined can be analysed and basic statistical analysis is presented to the internal evaluation committee (OMEA) of the Department after each exam period for appropriate discussion and ratification.

A document for examination procedures was made available to the AP, in which procedures in relation to how mitigating circumstances are reported and processed is not explicitly included in the Study Guide. Similarly, a procedure for student complaints and appeals is not published.

The EEAP notes that first year students are suitably welcomed to the activities of the Department by staff. Across all year cohorts, students, academics and administration staff have stressed particularly close interactions between them, ensuring suitable support to student learning and underlying mutual respect.

Students, both current as well as ones having graduated, were particularly enthusiastic about the education they received, and they noted strong bonds with their instructors. The EEAP stresses the excellent student initiative to participate in international competitions (iGEM) in multidisciplinary teams, where they have achieved outstanding results. The Faculty should further encourage such activities in the future.

Students with special needs are well looked after.

The EEAP notes the creation of facilities outside the main Thessaloniki campus with important facilities for student use.

Panel Judgement

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

Panel Recommendations

- Continue to use flexible means of delivering learning targets, to incorporate asynchronous online learning, synchronous teaching in large as well as small groups, and flexible examination via multiple means.
- Create flexible curricula where cutting edge topics such as Computational Biology, Genomics, Evolutionary Biology, Medical Biology etc. are well represented.
- Specialisation currently implemented in third year (5th and 6th semesters) should continue in the fourth year of study and should be implemented through relevant consolidation of existing subjects and introduction of new ones that reflect relevant specialisations as indicated in the previous point.
- Specialisation should be instigated at undergraduate elective modules and postgraduate courses so as to reflect interfaces with Informatics, Medicine and Engineering.
- Elective subjects should be introduced to prepare students for professional engagement with bio-related industries (e.g., fisheries).
- Put in place practices for exam result scrutiny, student extenuating circumstances reporting and management, as well as student appeals.
- The Department should encourage and reward excellence by adopting prizes for outstanding performance across student cohorts.
- The role of academic advisor should be enhanced and further promoted, so as to allow all students to be allocated to a member of academic staff as personal tutor that can act as their mentor and provide guidance throughout the course of study.
- The curriculum should be enhanced to encourage entrepreneurial activity.

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 Department has well-established procedures for awarding higher education degrees, supporting the duration of studies, rules ensuring student progress, and terms and conditions for student mobility. Student mobility is based on the Erasmus+ rules augmented by Departmental (e.g., emphasis on placement) and University guidelines. Relevant information is provided in “B3. Οδηγός Σπουδών.”

According to European practice, the Department's recognition of student credits is based on the ECTS, which is clearly and consistently applied across the curriculum.

Only students who fulfil all requirements of the curriculum can progress to graduation. In line with other Departments and Universities in Greece, very few students graduate soon after the 8th semester. In fact, the sum of students past year 4 is higher than those up to year 4 for the last 10 years shown. This is a widespread problem that drains resources and creates negative educational issues but falls mostly outside the purview of the Department.

There are established procedures for students to receive documentation that explains the ECTS units included in the final grade reported in the Diploma degree and the units reported in the Diploma Supplement (transcript). All information is available to students in electronic form.

There is a procedure in place to ensure and certify that Department graduates can teach Biology-related subjects in secondary education.

An impediment to successful career paths for graduates of the Department is the absence of appropriate legal framework to entrench employability rights into law (επαγγελματικά δικαιώματα Βιολόγων), a general problem for several Biology Departments in Greece. The EEAP urges the Education Ministry and other relevant authorities to resolve this issue that has been highlighted multiple times in previous evaluations.

Panel Judgement

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

Panel Recommendations

- By analogy to other Departments, the EEAP suggests establishing internal regulation to ensure that students are allowed to progress to years 3 and 4 only after having passed at least 75% of courses in the first two years of study. This appears to have resulted in improved graduation rates and a more self-motivated student body in other Departments. The EEAP suggested this point of regulation during meetings but was told that it cannot be implemented, despite the fact that it has been done elsewhere for a few years now. The EEAP urges the Department to re-think this point.
- The EEAP suggests the adoption of prizes for students that excel in specific subjects or achieve outstanding performance in their cohort.
- To encourage multidisciplinary study, mechanisms of co-supervision of student Diploma research projects by academic staff in other Departments could be established.
- Improvement of the legal framework for graduate employability is critical and should be enacted.

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 EEAP did not see details of Faculty search and recruitment data, which will be a useful addition to the material for future assessments. It was emphasised by the Faculty that recruitment procedures are fair and transparent, and the EEAP wishes to encourage this practice to continue. Some institutional inbreeding is evident, but it is not excessive and, for the most part, Faculty who have spent all of their careers within the Department appear to have done well in their teaching and research activities.

As is the case with most Greek Universities, no start up packages are available to new Faculty, and formal mentoring with regard to course development, teaching, and development of grant proposals is done on an *ad hoc* basis. The EEAP noted that younger Faculty appeared to be satisfied with the mentoring that they have received even within this informal arrangement.

The EEAP felt that opportunities for the promotion of professional development of Faculty are overall good but could improve further. It was a positive point for the Department that several Faculty members have taken advantage of the opportunity to go on sabbatical leave in recent years. The extent of interactions and collaborations with Faculty in Universities outside of Greece is at an acceptable level but could improve substantially.

The teaching Faculty is well qualified in their sub-disciplines as evidenced by the student responses to questions by the EEAP and the overall student satisfaction in questionnaires. The EEAP did not see evidence of a mechanism of retraining and mentoring of the Faculty in expanding areas (e.g., training in teaching techniques, teaching sabbaticals, short term visits).

The majority of Faculty members are research-active, and this helps the link between education and research. The curriculum for the most part is keeping track with new developments in

various fields, but the EEAP noted that teaching of some “general” subjects such as Mathematics, Statistics, Chemistry could provide a more biologically relevant context. This was pointed out by students and recent graduates.

In comparison to Faculty in other Biology Departments in Greece, the Faculty in Thessaloniki are less active in writing or translating textbooks. On the other hand, the EEAP noted that the Department plays a major role in editing the *Journal of Biological Research-Thessaloniki*, which shows a positive trajectory in terms of impact factor, increases the visibility of the Department and provides opportunities for students to train in literature review and journal editing.

Although it was not easily discerned by the data provided, especially for some Faculty who do not maintain up-to-date CVs or Google Scholar profiles, it is clear that the Faculty falls into three very different categories in terms of publication output. Some Faculty (7-10) are consistently very good to excellent in terms of consistently publishing well-cited papers. Most Faculty members (20-30) maintain a decent publication output but some improvement in both quantity and impact could be aimed for. Finally, some Faculty members (10-15) publish very little, and their publications appear to have low impact. The EEAP recognises that in a Department with mostly undergraduate students it is not easy to aim for high-impact publications as a matter of routine. On the other hand, mentoring of the Faculty who are not very productive by those who have found a way to maintain a good output could improve the overall publication profile of the Department.

Related to the improvement in publication output, it is important that Faculty actively pursue externally funded opportunities. In 2019 the total budget of externally gained grants totalled 1.3 million euros, which is small for a Department of almost 50 regular Faculty members when one considers that Departments with less than half the Faculty numbers are able to gain two times this yearly funding. Stronger participation in European consortia, and collaborations with successful graduates now working independently abroad could increase this funding substantially. Other sources of funding from companies in or near Thessaloniki could also be pursued.

The EEAP was told of formal mechanisms that track Faculty performance in teaching and address potential problems successfully. Something equivalent for research output was not identified and, in fact, the EEAP was surprised to hear in one of the meetings that in the opinion of the Faculty present no such problem (of low research output) exists. In the opinion of the EEAP this disconnect between opinions is partly due to absence of mechanisms for monitoring publication output of Faculty, taking into consideration both quantity and impact.

The procedure to attract and hire highly qualified personnel to fill new Faculty positions can have a transformative effect on the Department. The EEAP was impressed to see that some recent hiring contributed to the international recognition of the Department. Hiring exceptional early- and mid-career Faculty will further enhance the international profile of the Department and secure additional highly competitive grants (e.g., ERC).

Panel Judgement

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

Panel Recommendations

- Aim for higher impact publications by the Faculty.
- Appoint new Faculty with the ability to attract starting ERC-level funding.
- Expand participation of Faculty members in Horizon Europe research grants and studentship consortia (e.g., COST actions).
- Encourage retraining of Faculty members via short visits abroad in emerging areas of Biology in order to update the curriculum.
- Consider appointing a review panel of outside prominent Faculty who will monitor research direction and output of the Faculty of the Department. The EEAP notes that such an arrangement was made some time ago and it is worth doing it again. Such a panel can provide independent feedback and serve as a sounding board for faculty whose research output has slowed down.
- The EEAP encourages stronger efforts to expand the number of foreign professors visiting the Department to either teach specialty courses (alternatively via Zoom), short courses, and/or be involved in research, which will increase the international profile of the programme and may lead to closer collaborations with Departments abroad. Such activities will also provide opportunities to the Department to participate in Faculty exchanges with foreign institutions.
- Links with other Departments and complementary research institutes in Greece should be strengthened, including short research visits and participation in teaching / seminars, etc.

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

Since 1987 the Department of Biology occupies a major part of a dedicated 10-floor building (six floors plus parts of the basement and the ground floor) in the main AUTH campus and since 2011 it has additional facilities at the Centre of Biological Applications in Angelochori (currently being equipped). The Department's infrastructure includes an amphitheatre (180 persons), four classrooms (280 persons), five seminar rooms (one for 60 persons and four for 20 persons each), seven instructional laboratories, computer rooms and workstation booths, a dedicated library with reading and PC room (in addition to the campus-wide library and associated reading spaces) plus extensive spaces for laboratory-based research, a certified unit of *in vivo* experimental models and six more units (three of them ISO-certified) providing services to third parties, in addition to museum collections and utility spaces.

According to the Department's documentation and virtual tour, its students, Faculty and researchers have at their disposal modern, extensive and generally adequate instrumentation, including microscopy and imaging, cell culture equipment, biological macromolecule analytics and sequencing, growth and maintenance chambers for model organisms, equipment for field research as well as access to major instrumentation (e.g., electron microscopy) shared with other Science Departments.

Departmental financial support comes mainly from state funding, mostly from the Ministry of Education and Public Investment Programme (ΠΔΕ) but also from EU structural funds (ΕΣΠΑ). As for all University Departments, the main financial instrument is the Special Account for Research Funding (ΕΑΚΕ), which handles external competitive grants, sponsorships and industrial

contracts. After a dip in both national public funding and external competitive (including EU) grants, an increase in financial support is noted during the last few years with a notable rise in 2019 through ESPA funds used for equipment. A recurring complaint of the Faculty members however is the inherent bureaucracy associated with even the smallest expense through ELKE, which needs many time-consuming steps in order to procure materials and supplies.

In terms of human resources, the programme is run efficiently by the 57 Faculty members (49 Teaching and Research Staff - ΔΕΠ and 8 Laboratory Instruction Staff - ΕΔΙΠ) together with 8 administrative and support employees. A potential drop in the number of faculty members due to upcoming retirement is projected, which may be partially offset by new hires. At present, and despite the increase in the undergraduate student population, the Faculty / student ratio hovers around 10 which is very good. A major weakness, however, in human resources is the lack of any technical laboratory staff (ΕΤΕΠ) for help with the running and maintenance of equipment, which results in excessive efforts by faculty members (ΔΕΠ & ΕΔΙΠ) over and above their teaching, research and service tasks.

Study guides are provided to all students, as is a plethora of other instructional resources, such as course material and guidelines for the conduct in the laboratory. In contrast, there was no comprehensive regulation of safety and hygiene, although the EEAP was assured such a guide is currently being set up.

The library resources and facilities (both centrally and in the different sectors / institutional labs) for document consultation, borrowing and reading are fully adequate. The library services are further supported by electronic infrastructure thus encouraging students to use modern bibliography and databases.

Teaching materials (books, textbooks, scientific journals, databases) are accessible to students, and there are a number of PC workstations covering student needs. The teaching Faculty uses electronic means to support the learning process (something that proved quite important during the pandemic of 2020-2021), while electronic means are also used in related processes such as the completion of student questionnaires.

Information and communication systems are rated highly due to the University's Electronic Governance System, which is versatile and efficient. Thus, the students have access to a wide range of digital services and opportunities over and beyond their strictly academic obligations. In addition to these services the recently instituted role of academic advisor helps students with guidance and advice towards a successful evolution and completion of their studies. The students have also easy access to specialized Departmental committees concerning mobility programmes like Erasmus, internships etc.

The fact that the Department is located in the midst of a vibrant University campus provides ample opportunities for student participation in a wide range of learning activities and exposure to many other academic but also cultural and athletic events.

Support and counselling services are fully available on campus. Access to counselling for academic, financial, psychological, personal identity, and sexual harassment issues is good as befits the biggest University campus in the Balkans and information for accessing such services

while keeping strict confidentiality is disseminated to all students through their study guide and accompanying materials. It is less clear whether similar support services are also in place for the Faculty and administrative personnel.

Overall, the institution ensures a satisfactory level of academic, social and medical support for students. Mechanisms are in place for students with physical and mental disabilities and our Panel was made aware that the Department assists in relevant cases using tailor-made examination of students with such disabilities.

The Biology programme through the initiative of its alumni has developed an important social services dimension in the form of the Facebook group *MetaBioNet*. It is very helpful to linking current undergraduates with programme graduates both for potential employment opportunities and for academic guidance plus, indirectly, has the potential to catalyse many other aspects within the Department, including funding, teaching and research. One notable outcome of this social networking is the successful participation of undergraduate students in international competitions such as the i-GEM contest in Synthetic Biology where students were recently distinguished.

Panel Judgement

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

Panel Recommendations

- The need for trained technical laboratory personnel is urgent for facility running and equipment maintenance. In addition, funding for equipment maintenance could be obtained partially from levying a fee (appropriately calibrated for external and internal users) of the experimental apparatuses and facilities.
- The Department should make a priority of instituting a comprehensive guide of safety and hygiene with associated training seminars plus appointing a dedicated safety officer from among its laboratory teaching or technical personnel.
- The currently available teaching and research spaces available require improvement and redesign in view of evolving needs (multiple lab sessions, team learning, etc.).
- The EEAP urges the Department to take a more active role in nurturing and promoting the *MetaBioNet* initiative. For example, part of the network could be hosted on the

Departmental website so that all graduates who visit the site can be informed of its existence and activities. It may also be useful that a Faculty member is assigned to assist in the activities of the network.

- The EEAP urges the Department to continue the effort to digitize and provide to the students older textbooks and manuals in digital forms in an effort to free space in the library and related reading rooms to allow for the creation of studying pods for the students.

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

The Department uses teaching evaluation forms to assess its performance. All subjects taught in the Department are evaluated via electronic questionnaires and the results are used by the Department to inform its curriculum changes. The EEAP notes the small number of participants in some cases, diminishing the value of statistical analysis of results and thereby difficult to establish reliable conclusion of student satisfaction with their programme.

Career paths of graduates are varied, as exemplified by employers as well as graduates themselves. The EEAP encourages the Department to reflect employable options in the curriculum choices.

There is a significant number of students that do not graduate in good time.

Panel Judgement

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

Panel Recommendations

- Alumni connections with the Department and within their cohort should be enhanced through establishing a database with relevant details with appropriate web presence.
- The Department should maintain activities to encourage engagement of its graduates with the teaching processes through Summer Schools or Seminars.
- Appropriate means of increasing student participation in questionnaires should be implemented, for example offering in-class time or means of motivating students to complete the forms in good time and in appropriate numbers.
- Collaboration across Departments (Medical Faculty, Veterinary School, Engineering, Chemistry, Agronomy, Pharmacy, Research Centres) to enrich the curriculum and increase students' hiring opportunities should be considered.
- Enhanced collaboration between the Department and the local, regional and national employers should be encouraged.
- Incorporating appropriate mechanisms to improve progression and reduce numbers of 'stagnating' students (e.g., completion of a percentage of ECTS in the first two years before progression to the more specialised years 3 and 4 should be considered).

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 Departmental website (<http://www.bio.auth.gr/>) is well designed and includes a lot of information about the Department. The website provides the information in Greek and English (however some of the drop-down menus are only in Greek). The information includes the personnel (including their CVs), the course of study, different areas of focus, opportunities for the Erasmus programme, publications, a tab for the journal edited by the Department (*Journal of Biological Research- Thessaloniki*). However, there is a 'Latest news' section that is in English, and that seems updated. The overall guide for undergraduate studies and the description of the Department (Οδηγός Σπουδών - Εγκόλπιο Τμήματος) are also included on the website. Students Advisors are listed on the site and the list is current. The operation hours of the library and available resources are listed.

The course outlines are available online; the information includes how many credits (ECTS) each course has, when it is taught, the instructor, the mode of instruction, and the method of assessment. Information on internships (πρακτική εργασία) is not up to date (available entries and opportunities listed on the website are for 2019-2020).

Reference to Quality Assurance (ΜΟΔΙΠ) is available as a web link for each course.

The majority of the published information is up-to-date and easily accessible. Exceptions to that constitute some of the materials in English, some of the information on the graduate programmes (for example the English version of doctoral students has a general statement dated 2019 and does not actually list any student or project).

The web pages of the Department are user-friendly and successful in terms of illustrating available facilities.

Panel Judgement

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

Panel Recommendations

- The CVs of the Faculty members should be updated regularly and a more uniform format for all Faculty CVs should be considered. Also important is for all Faculty members to establish a Google Scholar profile or something equivalent that can be seen freely.
- Since the English version of the website of the Department of Biology is under development, it is strongly encouraged that the Department continues with it, as this would be a place where students from other countries could get excited about joining the department through Erasmus.
- The social / professional network that has been initiated by some of the Biology graduates (*MetaBioNet*) is a commendable and highly effective way for current students to connect with alumni of the programme (for information and networking). However, at the current time this site exists only on social media (Facebook), and it would be important to be available and accessible from the Departmental website.
- Although the Department organizes a community event (DNA day), the information for that day is not available on the website. It would be important for the visibility of the Department to advertise such events.

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 regular monitoring and revision of the study programme by the Academic Planning and Studies Programme Committee, OMEA, and the General Assembly. OMEA leads the collection, analysis and evaluation of all key performance indicators, course satisfaction questionnaires, internal evaluation reports, and reports to MODIP. Thus, the study programme assessment is performed according to the quality principles as required by HAHE. Input from additional groups (for example undergraduate and graduate students, alumni, stakeholders) that could help identify changing societal needs and alter the curriculum is very weakly evident.

The EEAP was left with the impression that big changes to the syllabus in terms of removing courses and replacing them with others are not easy to implement, and that the Faculty members prefer to make changes within the existing framework of courses. Within this limitation, the EEAP notes a substantial list of course changes that have been implemented in the last 4 years.

Monitoring of student workload and progression is in general satisfactory, although the formal mechanism of the Faculty advisor programme does not appear to be fully utilised. The EEAP notes that present and past students of the Department were very appreciative of the hard work that the faculty put into teaching and mentoring of their pupils. This was a very strong point that speaks to the teaching excellence of the Department.

The procedures for evaluating student performance are in line with expectations. The EEAP is not aware of mechanisms that identify individual student interests, such as, for example, of students who are research oriented and wish to pursue a career in academia vs. students who

wish to pursue employment in industry or in teaching. Of note, the Department has added a set of guidelines for those students wishing to obtain a certificate of teaching ability and has included two new courses on Educational Psychology and Theory and Practice of Pedagogy, which are tailored for those students. In view of the fact that middle and high school Biology courses are usually taught by Biology graduates, these additions are very welcome.

Student expectations, needs, and satisfaction are partially assessed via the electronic evaluation of each course. The EEAP notes that the percentage of students participating in such evaluations is on an increasing trend, and that the overall course satisfaction indicated by the students is very high. An indirect way to assess student satisfaction is market placement and career prospects of recent graduates, which the EEAP found extremely successful. The EEAP recommends that a programme of exit interviews be implemented, so that, upon graduation, students may provide feedback on their overall experience with the Department.

The EEAP was impressed by the quality of the support areas that were shown in a well-produced video during the remote “visit”. Most laboratories appeared to be clean, well-lit and equipped with state-of-the-art hardware. One potential issue was noted with respect to the limited hours of the Departmental library (it closes at 14:30), which makes it not very useful for the students. The EEAP was told that plans for combining libraries from several Departments might allow extra personnel that can keep them open longer.

The secretarial support personnel that the EEAP met appeared to be happy with their working conditions. Of note, laboratory personnel are all PhD holders, but they have limited career progression opportunities. This is something that the Ministry of Education must consider and improve.

The EEAP notes that the Department is in the process of rethinking part of the syllabus, with significant alterations in course content and design being planned. The EEAP provides further feedback on this point in the recommendations section.

Panel Judgement

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

Panel Recommendations

Some suggestions for course improvement:

- Convene a meeting with external stakeholders and discuss what additional areas of knowledge / expertise they wish to see in the students.
- Convene a meeting with recent and older graduates of the Department working abroad to get their opinion on additional courses that need to be added to the curriculum based on their experience.
- Strongly consider the possibility to restructure the course load by eliminating very old-fashioned descriptive courses and introducing new subjects that reflect current trends.
- Consider modernizing traditional courses with -omics and bioinformatics sections.
- Consider inviting faculty from abroad to teach sections of courses via Zoom links.

General recommendation:

The EEAP recommends that students be explicitly informed of the existence and function of OMEA and MODIP. It is also recommended that programme content review continues on a regular basis and ideally includes the involvement of students. If student representatives cannot be persuaded to attend, open meetings with whole years may be attempted in order to discuss course content in a general way.

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 Department of Biology had an external evaluation in May 2010 by a committee of four expert evaluators. The previous review found significant strengths to the programme of the Department, including the comprehensive training, the utilization of the ERASMUS programme for Departmental mobility, the collaboration with social, cultural and production organizations. The committee also provided some recommendations on issues that could be improved. These recommendations included suggestions to improve / reformat the curriculum and improve some of the equipment (microscopes) used in the teaching laboratories and general infrastructure. Similarly, there were many recommendations to the University and the government encouraging them to allow them to receive both research funding as well as additional positions for research and teaching Faculty.

The Department provided a response to the 2010 evaluation, and an update to what has been accomplished and achieved since then. They also provided reasons for rejecting / not implementing some of the recommendations in the area of the curriculum. Notable changes and accomplishments include:

- The content of courses has been reformed and adjusted (although the name of the course remained the same). More hands-on teaching has been implemented.
- Several electives are now taught by Faculty across discipline areas as well as a tutorial on how to formulate a scientific hypothesis and employ appropriate scientific writing tools.
- Additional ways to evaluate student performance (beyond traditional final exams) have been implemented.
- A new facility is almost complete (in Angelochori) with brand new infrastructure. Moreover, funding has been received and all teaching microscopes have been replaced.
- Some new faculty have been added to the Department who are highly qualified and without previous ties to the Department.
- The description of the General Education area has been further clarified.

- A significant number of students take advantage of mobility programmes like Erasmus.

Recommendations that were not adopted involved:

- The rescheduling of courses, which are taught early in the core curriculum and which were not thought to effectively contribute to student knowledge at that time, to a time later on in the curriculum. These include the course of 'Mathematics and Statistics' and 'Physical Chemistry'.
- The content of some of these courses, like Physical Chemistry, which are delivered by faculty outside of the Department, has not been re-evaluated.

The Department indicated that they have adopted ~70% of the recommendations of the previous evaluation.

All Department members (Faculty and staff) were aware of the importance of the external review and were accommodating and provided any additional requested information. They had clearly updated materials and the website to be available for the review. Moreover, during the sessions with the Panel members, they were knowledgeable and responsive to all questions asked.

Since the review was conducted remotely, not all members of the programme were present at the specified sessions. The Panel met with 11 undergraduate students, most of them seniors. The Panel did not meet with graduate students. Only one member of the EDIP was in one of the sessions.

Panel Judgement

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

Panel Recommendations

The recommendations of the Panel, based on suggestions by programme graduates, focus again on the restructuring and rethinking of the curriculum. Specifically:

- The content of courses like Mathematics and Statistics and Physical Chemistry is recommended to be assessed such that it becomes more relevant to the knowledge needs

of the discipline of Biology and at a time when the students value its application. It is strongly recommended that since all focus areas in the 3rd year (5th semester) offer Mathematics and Statistics again, this could be a mandatory course for all directions, and it could get removed from the 1st semester.

- The course load is significant. Some old-fashioned descriptive courses could be redesigned or shortened within the existing curriculum.
- Given the fact that regular evaluations appear to take place at long intervals (11 years have passed since the last visiting group), the Department could implement interim informal evaluations as it did in the past. These evaluations could be general, or they could pertain to specific questions or laboratories.

PART C: CONCLUSIONS

I. Features of Good Practice

- There is strong effort, willingness, and enthusiasm by the Department to comply with evaluation procedures.
- The Faculty is proactive, dedicated, enthusiastic in dealing with the teaching duties and most of the staff is involved in quality research activities.
- Some Faculty are involved in successful research grant applications that facilitate the smooth functioning of the Department.
- There is only a small percentage of 'inbreeding' in the Faculty.
- The new curriculum follows recommendations from the previous evaluation (70% adopted) and efforts are being made for continuously improving and excelling in teaching and research.
- The gender balance is respected in staff members.
- The needs of students with physical disabilities are accommodated.
- There is a strong awareness of the importance of research impact.
- The teaching facilities are appropriate, with one large lecture hall, four smaller lecture halls, and well-managed spaces for laboratory practical courses; the spaces are clean. The equipment for the practical courses of the undergraduate and postgraduate students is modern and financed by recent grants.
- There is strong effort for public engagement such as regular guided school visits.
- The website is user-friendly and up to date.
- There is a satisfactory rate of mobility of students with Erasmus.
- Alumni connections through *MetaBioNet* are commendable and offer valuable perspectives to the students.
- There is a continuous effort to increase the visibility and impact of the *Journal of Biological Research - Thessaloniki*.
- Efforts to combine libraries and extend the opening hours, in combination with the digitization process of older materials and textbooks, are commendable and should continue.
- Stakeholders showed great interest in pursuing further existing academic / industrial partnerships with the Department.
- Several social partners and public stakeholders are identified and engaged, resulting in the continuous development of the Department and improving graduate opportunities.
- The function of the administration office is satisfactory concerning the delivery of hard copies of diplomas and related material.

II. Areas of Weakness

- Mid- and long-term target objectives are not currently articulated.
- The Department does not participate in specialized infrastructures located in other parts of Greece (e.g., Patras, Heraklion, Athens, Larissa etc.).
- The library is not modern and according to the needs of the Department. However, a plan exists for the creation of a new, more modern and student friendly library.
- Mobility of the academic staff should significantly improve.
- The scientific collaborations with the Medical Faculty should improve significantly, and therefore there should be a continuous effort to further develop and strengthen these links.

III. Recommendations for Follow-up Actions

The EEAP wishes to highlight the following actions:

- Clear articulation of the Department's strategic plan with target objectives over the next five to ten years.
- Identification and engagement of additional public and private partners who will contribute to increased regional economic impact of the Department.
- Rethinking the curriculum in order to engage and inspire students with offerings in Computational Biology, Bioengineering, Medical Biology and bio-related industry, as well as delivering more lectures in English.
- Organization of career days by the Department to familiarize the students with available job opportunities (academics, industry, secondary education, biomedicine etc.) involving the active participation of entrepreneurs.
- Interaction and collaboration with other Departments (Medical Faculty, Veterinary School, Engineering, Chemistry, Agronomy, Pharmacy) and complementary research institutes in Greece, including short research visits and participation in teaching / seminars, etc.
- Critical improvement of the legal framework for employability of graduates (επαγγελματικά δικαιώματα).
- Implementation of interim informal Departmental evaluations of research and curriculum.
- Promotion of transferable skills (presentation, entrepreneurship, etc).
- Distribution and promotion of student advising duties and assessment of current plans effectiveness.
- Incorporation of appropriate mechanisms to improve progression and reduce numbers of 'stagnating' students, e.g., completion of 75% of ECTS in the first two years before progression to the more specialised years 3 and 4 should be considered.
- Encouragement and reward of excellence by adopting prizes for outstanding performance across student cohorts.

- Maintenance of activities to encourage engagement of graduates with the teaching process through Summer Schools or Seminars.
- Monitoring and adjustment of effectiveness of newly instituted programmes and practices, of teaching and of student grievances.
- Encouragement of continuous education of Faculty members via short visits abroad in emerging areas of Biology and expansion of the number of foreign professors visiting the Department to either teach specialty courses, short courses, and/or be involved in research.
- Appointment of new Faculty with the ability to attract starting ERC-level funding and expansion of participation of Faculty members in Horizon Europe research grants and consortia (e.g., COST actions).
- Aiming for higher impact publications by the Faculty.
- Hire of technical laboratory personnel for efficient facility activities and equipment maintenance.
- Regular updates of Faculty CVs and establishment of a Google Scholar profile or something equivalent that can be seen freely for all Faculty members.
- Inclusion of *MetaBioNet* information and activities on the Departmental website.
- Information about scientific community events (e.g., DNA day) on the Departmental website.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **1, 3, 4, 6, 7, 8, and 9.**

The Principles where substantial compliance has been achieved are: **2, 5, and 10.**

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. Prof. Thimios Mitsiadis (Chair)**
Universität Zürich, Switzerland
- 2. Prof. Emeritus Spiros Agathos**
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