

Doc. 300.1.1

Date: Date.

External Evaluation Report

(Conventional-face-to-face programme of study)

- **Higher Education Institution:**
Frederick University
- **Town: Nicosia**
- **School:** Health Sciences
- **Department:** Life and Health Sciences
- **Programme of study**

In Greek:

Εφαρμοσμένες Βιοιατρικές Επιστήμες (4 ακαδημαϊκά έτη, 240 ECTS, Πτυχίο (B.Sc.))

In English:

Applied Biomedical Sciences
(4 academic years, 240 ECTS, Bachelor of Science (B.Sc.))

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



The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the “Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws” of 2015 to 2021 [L.136(I)/2015 – L.132(I)/2021].

A. Introduction

A site visit took place on 14 June 2024 at Frederick University, Nicosia campus. A full-day schedule (09.00-18.20, in reality meeting was adjourned at 18.45) had been prepared to allow ample interaction with leadership, teachers, students/graduates, administrative staff involved in the Applied Biomedical Sciences 4-year B.Sc. programme, which will be given as a conventional programme (as opposed to a distance-learning e-programme). As a new feature in the assessment, the external evaluation committee (EEC) also met with a group of external stakeholders engaged in the programme. Finally, the EEC visited the laboratories for teaching and research, several of the lecture halls, the library, and two of the external stakeholders.

This programme is organized by the Department of Life and Health Sciences under the School of Health. The latter offers a total of 12 study programmes at B.Sc./M.Sc./Ph.D. level in addition to the programme now under scrutiny. In total, Frederick University has five schools that harbour 4750 registered students in over 75 different programmes at B.Sc./M.Sc./Ph.D. level, 2000 of whom at B.Sc. level programmes. Thus, there is ample experience at both the University and School levels to design, start, run and maintain study programmes like the one being assessed here.

The School of Health has 54 faculty members at various academic levels with varying degrees of teaching and international research experience. In addition, there are 4 visiting professors and 8 other visiting staff members. Of these, a total of 25 teachers are involved in the Applied Biomedical Sciences programme.

All meetings took place in a dedicated conference room at the School of Health with the possibility to connect digitally for the few individuals who could not take part physically. Prior to the visit, the EEC had received the Application for Evaluation signed by Prof. Kyriacos Kyriacou, PhD, the coordinator of the proposed programme. It is unclear when the application was filed since it lacked a date in the appropriate box but the EEC noted that the programme was “Expected to operate in the Winter/Spring semester of the academic year 2024”. During the meetings, it became clear that the revised ambition is to start the programme during the fall semester starting after the summer of 2024, which seems a very optimistic timeline. During the day of meetings, the EEC was given oral presentations and provided slides about the university, the Internal Quality Committee, the school and the programme, which were all very helpful in the assessment. Other written background material, including four letters of support from external stakeholders (from Synlab, Karaiskakio, Act BIO and Association of Clinical Laboratory Directors, Biomedical and Clinical Laboratory Scientists), CVs of the teaching staff, and course descriptions, was also provided.

After introductions of the EEC members, the first meeting of the day involved the University level leadership. During this meeting, a general overview of the university was given.

The second meeting of the day concerned the Internal Quality Committee to describe how the quality assurance processes are structured at this university. Thereafter, the third meeting comprised an overview of the School of Health and more specifically the Department of Life and Health Sciences was presented. Particular emphasis was given to the organization, staff composition, infrastructure, collaborations and research performed.

During the next meeting, the programme plans were laid out in some detail by the programme coordinator and co-coordinator with support from the Dean and Vice Dean of the School. The

presentations included a description of and discussions about the programme aims and learning outcomes, programme operation, admission requirements, programme structure, academic staff involved in the programme, predicted graduate job opportunities, and finally some information about the upcoming legislation, which the programme is specifically designed to accommodate. In addition, a recent SWOT analysis regarding strengths, weaknesses, opportunities and threats for the programme was included. Slides from all presentations were digitally shared with the EEC. Detailed course parameters were scrutinized and discussed.

The last meeting before lunch included five individuals from three of the main external stakeholders, who were all very positive to the start-up of this programme and also had been involved with advice in the design. They emphasized the need for “real-world” experience in Clinical Diagnostics and were committed to provide the university with placements for applied biomedical science students in their clinical laboratories.

Following a brief lunch break, the EEC was given the opportunity to meet 15 teachers scheduled to be involved in the B.Sc. programme. Eleven of them took part on site while four were present digitally. All presented themselves and described their backgrounds and experience. The teachers were active and interested in their communication with the EEC and seemed enthusiastic for the start of a new programme at the School. Many of them already teach at the pharmaceutical programmes given and some also in other programmes.

Thereafter, a group of students and graduates from programmes given by the Department of Pharmacy at the School of Health discussed their experiences from Frederick University and the School of Health. Four were present in the room whilst one student joined via Zoom. Similarly to the teacher group, the students were very forthcoming and eager to talk about their experiences during the B.Sc. programme, the reasons why they chose to enroll at or transfer to Frederick.

The EEC was also given the possibility to meet with administrative staff to discuss their roles in supporting the students in different ways.

Thereafter, the EEC was offered a tour around the teaching premises including student laboratories, the library and lecture halls, and also to some of the research facilities that were often integrated with the student laboratories. The EEC was duly impressed with most of the premises which appeared to be well suited for the purpose of the B.Sc. programme but slightly concerned with the double use and potential challenges in scheduling laboratory space, as explained in Section 5.

After the visit around the premises, the EEC was driven to the Karaiskakio Foundation building for an interesting visit of their research premises, followed by a visit at a commercial clinical laboratory, the Act BIO laboratory, where students may be placed as part of the proposed programme. After a short internal discussion in the van on the way back to the School, the EEC was able to summarize their impressions of the day and subsequently get some questions clarified by the programme coordinator and co-coordinator.

Finally, the EEC would like to thank everyone involved in planning the day and all staff for the constructive dialogue.



B. External Evaluation Committee (EEC)

<i>Name</i>	<i>Position</i>	<i>University</i>
Prof. Martin L. Olsson	Chair of committee	Lund University, Sweden
Prof. Geert van den Bogaart	Member of committee	University of Groningen
Prof. Wladimiro Jimenez Pavedano	Member of committee	University of Barcelona
Mr. Michalis Andreou	Student representative	University of Cyprus

C. Guidelines on content and structure of the report

- *The external evaluation report follows the structure of assessment areas.*
- *At the beginning of each assessment area there is a box presenting:*
 - (a) sub-areas*
 - (b) standards which are relevant to the European Standards and Guidelines (ESG)*
 - (c) some questions that EEC may find useful.*
- *The questions aim at facilitating the understanding of each assessment area and at illustrating the range of topics covered by the standards.*
- *Under each assessment area, it is important to provide information regarding the compliance with the requirements of each sub-area. In particular, the following must be included:*

Findings

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

Strengths

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

Areas of improvement and recommendations

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

- *The EEC should state the compliance for each sub-area (Non-compliant, Partially compliant, Compliant), which must be in agreement with everything stated in the report. It is pointed out that, in the case of standards that cannot be applied due to the status of the HEI and/or of the programme of study, N/A (= Not Applicable) should be noted.*
- *The EEC should state the conclusions and final remarks regarding the programme of study as a whole.*
- *The report may also address other issues which the EEC finds relevant.*

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

Sub-areas

- 1.1 Policy for quality assurance
- 1.2 Design, approval, on-going monitoring and review
- 1.3 Public information
- 1.4 Information management

1.1 Policy for quality assurance

Standards

- *Policy for quality assurance of the programme of study:*
 - *is a part of the strategic management of the programme*
 - *focuses on the achievement of special goals related to the quality assurance of the study program.*
 - *has a formal status and is publicly available?*
 - *supports the organisation of the quality assurance system through appropriate structures, regulations and processes*
 - *supports teaching, administrative staff and students to take on their responsibilities in quality assurance*
 - *ensures academic integrity and freedom and is vigilant against academic fraud*
 - *guards against intolerance of any kind or discrimination against the students or staff*
 - *supports the involvement of external stakeholders*
 - *is developed with input from industry leaders and other stakeholders (i.e. industry leaders, professional bodies/associations, social partners, NGO's, governmental agencies) to align with professional standards.*
 - *integrates employer surveys to adapt to evolving workplace demands.*
 - *regularly utilizes alumni feedback for long-term effectiveness assessment.*
 - *is published and implemented by all stakeholders.*

1.2 Design, approval, on-going monitoring and review

Standards

- *The programme of study:*
 - *is designed with overall programme objectives that are in line with the institutional strategy and have explicit intended learning outcomes*

- *Aligns course learning outcomes with student assessments using rubrics to ensure objectives are met.*
- *Connects each course's aims and objectives with the programme's overall aims and objectives through mapping, aligning with the institutional strategy.*
- *is designed by involving students and other stakeholders*
- *benefits from external expertise*
- *reflects the four purposes of higher education of the Council of Europe (preparation for sustainable employment, personal development, preparation for life as active citizens in democratic societies, the development and maintenance, through teaching, learning and research, of a broad, advanced knowledge base)*
- *is designed so that it enables smooth student progression*
- *is designed so that the exams' and assignments' content corresponds to the level of the programme and the number of ECTS*
- *defines the expected student workload in ECTS*
- *includes well-structured placement opportunities where appropriate*
- *is subject to a formal institutional approval process*
- *results in a qualification that is clearly specified and communicated, and refers to the correct level of the National Qualifications Framework for Higher Education and, consequently, to the Framework for Qualifications of the European Higher Education Area*
- *is regularly monitored in the light of the latest research in the given discipline, thus ensuring that the programme is up-to-date*
- *is periodically reviewed so that it takes into account the changing needs of society, the students' workload, progression and completion, the effectiveness of procedures for assessment of students, student expectations, needs and satisfaction in relation to the programme*
- *is reviewed and revised regularly involving students and other stakeholders*
 - *collaborates with industry experts for curriculum development.*
 - *conducts joint reviews with external academic specialists to maintain academic rigor.*
 - *performs periodic assessments with external stakeholders to ensure continuous alignment with market needs.*
 - *establishes collaboration with international educational institutions or/& other relevant international bodies for a global perspective.*
 - *conducts regular feedback sessions with local community leaders for societal relevance.*

1.3 Public information

Standards

- *Regarding the programme of study, clear, accurate, up-to date and readily accessible information is published about:*
 - *selection criteria*
 - *intended learning outcomes*

- *qualification awarded*
- *teaching, learning and assessment procedures*
- *pass rates*
- *learning opportunities available to the students*
- *graduate employment information*

In addition, the program has established mechanisms of transparency & communication to ensure that

- Professional bodies validate program descriptions and outcomes.
- Community leaders actively participate in ensuring that the program's public information is relevant and resonates with the local and societal context.
- External auditors review public information for accuracy & consistency vis-à-vis the actual implementation of the program.
- Industry-specific & societal information is regularly updated with expert inputs.
- Alumni testimonials are included for a realistic portrayal of program outcomes.

1.4 Information management

Standards

- *Information for the effective management of the programme of study is collected, monitored and analysed using specific indicators and data i.e:*
 - *key performance indicators*
 - *profile of the student population*
 - *student progression, success and drop-out rates*
 - *students' satisfaction with their programmes*
 - *learning resources and student support available*
 - *career paths of graduates*
 - *industry trend analysis.*
 - *feedback mechanisms from external partners/stakeholders*
 - *data exchanges with professional networks*
 - *employer insights concerning career readiness*
- *Students and staff are involved in providing and analysing information and planning follow-up activities.*

You may also consider the following questions:

- *What is the procedure for quality assurance of the programme and who is involved?*
- *Who is involved in the study programme's design and development (launching, changing, internal evaluation) and what is taken into account (strategies, the needs of society, etc.)?*
- *How/to what extent are students themselves involved in the development of the content of their studies?*

- *Please evaluate a) whether the study programme remains current and consistent with developments in society (labour market, digital technologies, etc.), and b) whether the content and objectives of the study programme are in accordance with each other?*
- *Do the content and the delivery of the programme correspond to the European Qualifications Framework (EQF)?*
- *How is coherence of the study programme ensured, i.e., logical sequence and coherence of courses? How are substantial overlaps between courses avoided? How is it ensured that the teaching staff is aware of the content and outputs of their colleagues' work within the same study programme?*
- *How does the study programme support development of the learners' general competencies (including digital literacy, foreign language skills, entrepreneurship, communication and teamwork skills)?*
- *What are the scope and objectives of the foundation courses in the study programme (where appropriate)? What are the pass rates?*
- *How long does it take a student on average to graduate? Is the graduation rate for the study programme analogous to other European programmes with similar content? What is the pass rate per course/semester?*
- ***How is it ensured that the actual student workload is in accordance with the workload expressed by ECTS?***
- *What are the opportunities for international students to participate in the study programme (courses/modules taught in a foreign language)?*
- *Is information related to the programme of study publicly available?*
- *How is the HEI evaluating the success of its graduates in the labor market? What is the feedback from graduates of the study programme on their employment and/or continuation of studies?*
- *Have the results of student feedback been analysed and taken into account, and how (e.g., when planning in-service training for the teaching staff)?*
- *What are the reasons for dropping out (voluntary withdrawal)? What has been done to reduce the number of such students?*
- *How and to what extent are external stakeholders involved in the quality assurance process of the program?*
- *How is external stakeholder feedback gathered, analyzed and implemented?*
- *In what ways do external stakeholders assist in making program information publicly available?*
- *How do external stakeholders contribute to evaluating graduate success in the labor market and obtaining feedback on employment outcomes?*

Findings

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

1.1 Policy for quality assurance

The B.Sc. in Applied Biomedical Sciences is a programme of the Frederick University to operate as a face-to-face conventional teaching programme for 4 years at 240 ECTS in the Greek and English languages, starting on 2024-2025 Academic Course. The aim of the programme is the association of Biology with human health and disease with special emphasis on laboratory medicine as well as pathobiology of human diseases. According to the document Application for Evaluation-Accreditation, a key training objective is the training of staff for Clinical Laboratories.

The programme has adopted a policy for quality assurance which is in line with the CYQAA (Cyprus Agency of Quality Assurance and Accreditation in Higher Education), European Standards Guidelines (ESG), European Qualifications Framework (EQF), and aims to ensure quality, academic integrity and freedom and to support teaching, administrative staff, students and external stakeholders. This policy involves both internal and external quality assurance as well as student questionnaires. The policy adopts relevant quality standards and indicators. In addition to the periodical External Evaluation procedure which is a prerequisite for the Institution's and the programme's accreditation, the programme has incorporated a periodical Internal Evaluation procedure according to the EUC policy that implicates the University Managers, the Faculty Members, and the Administrative quality system. However, there is not an Annual Report registering the overall evolution of the different indicators.

1.2 Design, approval, on-going monitoring and review

The programme of the study in general has well defined objectives and learning outcomes in line with the purpose of higher education of the Council of Europe, and the number of assigned ECTS correspond to the students' workload as judged from the Course Descriptions and interviews with the teaching staff.

Teaching is based on the permanent staff but also benefits from external experts that largely contribute to the teaching courses as well as supervisors or co-supervisors in practical courses. Approximately 70% of the teachers are permanent staff. The Programme Committee should examine whether the ratio between the permanent staff and part-time staff is in accordance with optimal teaching conditions. It was clear during the presentations and staff interviews that the teaching staff is research-oriented and spends on average approximately 40% of their time on research. This is anticipated to have a positive impact in the development of the programme.

A strength of the programme is its strong connection with clinical practice, as it aims to meet the current expectations and requirements of scientific and professional bodies, as well as societal needs, for the profession of Applied Biomedical Scientist. This involves adhering to modern and evolving national and European standards and regulations that govern clinical diagnostics. These standards and regulations are integrated into the programme, as evidenced by their inclusion in courses such as Quality Assurance and Accreditation in Biomedical Sciences, Ethics for Biomedical Sciences, and Information Systems in Health (ABS104, ABS112, ABS206). Additionally, the programme ensures that the final degree includes a substantial proportion of clinical laboratory placements and theoretical instruction (courses ABS306 and potentially ABS408). Thereby it is assured that the final degree reflects the significant time investment required for training the theory and practice of Clinical Medicine.

As mentioned above, the programme includes practical placement at external stakeholders (Clinical Laboratories) in course ABS306, and potentially also in the research internships in ABS408, and given that the programme has established solid collaborations with local institutions, the committee recommends to arrange practical placements also in laboratories giving opportunities for research.

1.3 Public information

Regarding the public information related to the programme, in addition to what would be presented in the website of Frederick University, it is planned to raise awareness of the Biomedical Sciences field within the general population.

1.4 Information management

According to the regulations, the Applied Biomedical Sciences Programme has a Coordinator, Kyriacos Kyriacou, Professor at the Department of Pharmacy who is a full-time staff for the programme. According to the EEC's impression, the Coordinator has a high degree of dedication and has a close and efficient communication with all staff involved in the development of the programme highly contributing to the quality of the planned programme. During the evaluation procedure, the coordinator and other members of the staff of the programme presented information regarding the duration of the studies, learning resources, and career paths, amongst others. Given the novelty of the programme, the establishment of an Alumni society is recommended to have longitudinal information regarding the career and employment path of the students.

Strengths

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

The teaching staff is research-oriented, and this will have a positive impact on research developments in the teaching.

The programme is coherent and well-structured, with courses designed to build progressively on one another. This is supported by a relatively small team of 25 teachers, fostering close collaboration and seamless interaction among faculty members.

The content and delivery of the programme correspond to EQF.

The programme is designed together with external stakeholders. The success of the programme lies strongly on the strong relationship with industrial external stakeholders, which has been emphasized by the interviewed stakeholders. The External Stakeholders have supplied letters of support.

The programme includes practical placement for the students that gives opportunities for hands-on experience which is fundamental for an Applied Biomedical Sciences programme.

It is planned that the programme is accredited by a newly founded professional body for laboratory medicine (Pancyprian Association of Biomedical Scientists).

Areas of improvement and recommendations

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

Although the study programme remains current and consistent with developments in society and science, the EEC believes that further improvements can be made to include modern concepts in biomedicine, including course topics like human microbiome and its implications, bioinformatics, big data and health (which would go well with the precision medicine course planned), and proactive aging and related regenerative medicine.

The committee also noted a total absence of information regarding the use of animal models in biomedical sciences and the absence of animal facilities as well. This is clearly something that a biomedical scientist, applied or not, should be well informed about.

The programme includes practical placements. The EEC suggests that reinforcing placements in laboratories that give opportunities for research will result in further improvement of the curriculum. Moreover, long-term and binding agreements should be in place with the external stakeholders, detailing the placement of the students, and agreements on training and supervision.

The programme should release an Annual Quality Report registering main findings in quality indicators.

The academic staff has to take advantage of the future collaborations between the programme and foreign Institutions to identify potential high-level Visiting Professors from the field of Advanced Biomedical Sciences.

The establishment of a well organised alumni society will provide longitudinal information for the career and employment path of the students post-graduation, which is a pivotal quality index for any academic programme.

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
1.1	Policy for quality assurance	Compliant
1.2	Design, approval, on-going monitoring and review	Compliant
1.3	Public information	Compliant
1.4	Information management	Compliant

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

Sub-areas

2.1 Process of teaching and learning and student-centred teaching methodology

2.2 Practical training

2.3 Student assessment

2.1 Process of teaching and learning and student-centred teaching methodology

Standards

- *The process of teaching and learning supports students' individual and social development.*
- *The process of teaching and learning is flexible, considers different modes of delivery, where appropriate, uses a variety of pedagogical methods and facilitates the achievement of planned learning outcomes.*
- *Students are encouraged to take an active role in creating the learning process.*
- *The implementation of student-centered learning and teaching encourages a sense of autonomy in the learner, while ensuring adequate guidance and support from the teacher.*
- *Teaching methods, tools and material used in teaching are modern, effective, support the use of modern educational technologies and are regularly updated.*
- *Mutual respect within the learner-teacher relationship is promoted.*
- *The implementation of student-centred learning and teaching respects and attends to the diversity of students and their needs, enabling flexible learning paths.*
- *Appropriate procedures for dealing with students' complaints regarding the process of teaching and learning are set.*
- *Detailed schedules in course materials are included, explicitly stating the expected hours for lectures, self-study, and group projects, ensuring transparency in time allocation.*
- *A system is integrated where each learning activity is assigned a weight proportional to its importance and time requirement, aiding in balanced curriculum design.*

2.2 Practical training

Standards

- *Practical and theoretical studies are interconnected.*
- *The organisation and the content of practical training, if applicable, support achievement of planned learning outcomes and meet the needs of the stakeholders.*

- *The expected hours for different components of practical training, such as lab work, fieldwork, and internships are clearly documented in the training manuals*
- *A weighting system is applied to various practical training elements, reflecting their significance in the overall learning outcomes and student workload.*

2.3 Student assessment

Standards

- *Assessment is consistent, fairly applied to all students and carried out in accordance with the stated procedures.*
- *Assessment is appropriate, transparent, objective and supports the development of the learner.*
- *The criteria for the method of assessment, as well as criteria for marking, are published in advance.*
- *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.*
- *Assessment, where possible, is carried out by more than one examiner.*
- *A formal procedure for student appeals is in place.*
- *Assessors are familiar with existing testing and examination methods and receive support in developing their own skills in this field.*
- *The regulations for assessment take into account mitigating circumstances.*
 - *The time allocation for each assessment task is explicitly stated in course outlines, ensuring students are aware of the expected workload.*
 - *A balanced assessment weighting strategy is implemented, considering the complexity and learning objectives of each task, to ensure fair evaluation of student performance.*

You may also consider the following questions:

- *How is it monitored that the teaching staff base their teaching and assessment methods on objectives and intended learning outcomes? Provide samples of examination papers (if available).*
- *How are students' different abilities, learning needs and learning opportunities taken into consideration when conducting educational activities?*
- *How is the development of students' general competencies (including digital skills) supported in educational activities?*
- *How is it ensured that innovative teaching methods, learning environments and learning aids that support learning are diverse and used in educational activities?*
- *Is the teaching staff using new technology in order to make the teaching process more effective?*
- *How is it ensured that theory and practice are interconnected in teaching and learning?*

- *How is practical training organised (finding practical training positions, guidelines for practical training, supervision, reporting, feedback, etc.)? What role does practical training have in achieving the objectives of the study programme? What is student feedback on the content and arrangement of practical training?*
- *Are students actively involved in research? How is student involvement in research set up?*
- *How is supervision of student research papers (seminar papers, projects, theses, etc.) organised?*
- *Do students' assessments correspond to the European Qualifications Framework (EQF)?*
- *How are the assessment methods chosen and to what extent do students get supportive feedback on their academic progress during their studies?*
- *How is the objectivity and relevance of student assessment ensured (assessment of the degree of achievement of the intended learning outcomes)?*

Findings

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

2.1 Process of teaching and learning and student-centred teaching methodology

The EEC obtained a clear overview of the learning, teaching and assessment of the four-year Bachelor of Applied Biomedical Sciences programme from the comprehensive "Application for Evaluation - Accreditation Programme of Study" document that outlines the official structure and the information presented during the site visit. The programme is extensive, offering a broad array of relevant courses that combine theoretical topics with practical skills training.

The EEC is very pleased with course ABS306 (Laboratory techniques in Biomedical Sciences/Professional development), which enables students to work in Clinical Laboratories. The active involvement of potential future employers in both teaching and professional training will greatly benefit the students.

The teaching methods are diverse, and include a variety of different learning methods including flip-the-classroom and digital learning tools. The courses connect well with the learning outcomes of the program. The Course Description documents provided to the EEC include these learning objectives, along with other course information such as the required learning materials and the teaching staff involved.

Students have not been directly involved in the design of the program, but they have been asked to provide advice on it through participation in various committees.

To ensure that the courses will remain current, the teaching staff are actively engaged in research, resulting in more than 50 publications in peer-reviewed journals over the past two years, and regularly visit conferences. Funding is supported by both local and international (European) grants. There are many collaborations between the teaching staff and other universities, hospitals and industry at the national and international levels. Incentives are also offered by the university for this, including financial support for publication fees and research, including PhD scholarships,

and training workshops on scientific publications. Budget is allocated by the university for conference visits and other training and professionalisation activities of the teaching staff.

Students will be encouraged to provide feedback during courses and through course evaluations, as this is already applied in the integrated Pharmacy B.Sc./M.Sc. programme of Frederick University. These course evaluations will be mandatory for the students to complete in order to increase student turnout. The EEC considers this an excellent idea, and this is already successful practice in the other programs at Frederick University.

Frederick is a comparatively small university, with approximately 300 members of the teaching staff and approximately 5000 students. The new Applied Biomedical Science programme will be part of the School of Health Sciences, which has approximately 62 staff and 600 students. An advantage of this comparatively small size is that it allows for more personal and intensive interactions between students and teaching staff, which was evident during interviews with the teachers and (former) students from the current Pharmacy B.Sc. programme. Students indicated that they appreciated the frequent contact with staff and felt their voices were heard.

Formal procedures for handling student complaints are in place, including independent mediators at the university level. Policies are also in place to accommodate disabilities, dyslexia, and other special circumstances of students, ensuring that the programme can be adapted as needed to support their individual needs.

However, the university's size limits the number of elective courses that can be offered. The EEC noted the absence of electives related to the industrial aspects of Applied Biomedical Sciences, which are essential for a comprehensive curriculum in this field. In addition, the training in bioinformatics seems too limited in the planned program. The EEC has recommendations on these issues and some course topics, which will be discussed under "Areas of Improvement and Recommendations" below.

2.2 Practical training

The EEC is impressed that approximately 20 out of the 40 courses include practical elements, accounting for around 120 out of the 240 ECTS. These practical components, including the planned activities and hours, are detailed in the Course Description documents. The programme provides students with substantial practical experience, significantly enhancing their career prospects. Furthermore, the committee is particularly impressed by course ABS306, which requires students to work one day a week at external stakeholders, off-campus clinical laboratories, for an entire semester. This assures that the students will comply with upcoming regulation in Cyprus for Clinical Laboratories, which significantly increases their job prospects as well.

The integration of practical and theoretical components across many courses ensures a strong connection between theoretical knowledge and practical application. Additionally, significant efforts have been made to minimize overlap between practical courses and to train students in a wide variety of techniques. This is facilitated by the close interactions among the teaching staff, an advantage of the relatively small size of Frederick University, which ultimately benefits the students.

2.3 Student assessment

The assessment plans are well-developed, utilizing appropriate instruments such as rubrics to ensure unbiased, transparent, and consistent evaluation. The assessment criteria, including the rubrics, will be made available to students.

Quality assurance measures for exams and other assessment tools are robust, including peer review by the course coordinator and departmental oversight. Additionally, there are established procedures for student appeals, adapted from other educational programs at Frederick University.

The quality of assessment is further strengthened by the experience of the teaching staff, who are already experienced in teaching and assessment through their involvement in other programs at Frederick University. However, a question was raised during the interviews with the teachers regarding how coordination between different teachers is achieved when it comes to how individual study objectives are covered in the assessments. The EEC concludes that there is no formal connection between the study objectives and what is included in the assessments for each course. Thus, it is not secured that all objectives are indeed covered by assessments.

Practical work of the students will be assessed continuously by the teaching staff, allowing for early identification of students at risk of failing and enabling timely interventions. This continuous assessment approach has been successfully implemented in other BSc programs, notably Nursing and Pharmacy.

Provisions for mitigating circumstances are also in place, facilitated through student advisors.

Strengths

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

2.1 Process of teaching and learning and student-centred teaching methodology

The 4-year Bachelor of Applied Biomedical Sciences programme will offer comprehensive training in biomedical sciences, designed in collaboration with stakeholders and potential employers, particularly organizations involved in clinical diagnosis. The programme addresses an emerging societal challenge: the anticipated shortage of staff in Clinical Laboratories due to upcoming legal policy changes, and also societal and technological developments. Course ABS306 ensures that students meet upcoming regulatory requirements for working in Clinical Laboratories, enhancing their employability. While not exclusively applied, the programme maintains a balanced approach between applied learning and research.

The curriculum includes a diverse range of topics, providing thorough coverage of biomedical sciences.

The faculty is highly qualified and actively engaged in research. They regularly publish papers in peer-reviewed journals (>50 over the past 2 years) and participate in scientific conferences. The university supports these endeavours through financial incentives and training opportunities. In cases where student work contributes to publications, they will be offered co-authorship, aligning with practices in other successful BSc programs like Pharmacy and Nursing.

Communication and collaboration between teaching staff and students at the School of Health Sciences are strong, facilitated by the university's smaller scale. The enthusiastic and committed teaching staff includes three clinicians, whose real-world clinical expertise enriches the curriculum with practical relevance and application for students.

With the vast majority on permanent contracts, Frederick University ensures stability and continuity in its teaching staff, fostering a consistent and high-quality educational environment.

The programme's flexibility allows for adjustments to meet evolving student needs, further enhancing its responsiveness and effectiveness.

2.2 Practical training

Students will engage extensively in practical work, gaining exposure to applied research within industrial environments (as mentioned above). Twenty out of the forty courses offered incorporate practical components.

The laboratory space and equipment required for training research techniques are in place, as detailed in section C5.

The teaching staff remains actively involved in research, ensuring their knowledge and skills are current and relevant for providing theoretical and practical training.

2.3 Student assessment

Good assessment plans are in place, with sufficient quality assurance. The teaching staff has sufficient experience in student assessment, and support and training by Frederick University are offered. This is underscored by the absence of complaints from students from the Pharmacy BSc programme at Frederick University.

Areas of improvement and recommendations

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

2.1 Process of teaching and learning and student-centred teaching methodology

The current programme offers limited training in bioinformatics, with an introductory Bioinformatics course offered only as one of the 7 electives. While the teaching staff indicated that several other courses also incorporate bioinformatics components, the EEC recommends to expand this extensively. Bioinformatics enables the analysis and interpretation of vast biological datasets, providing critical insights into complex biological processes, disease mechanisms, and potential therapeutic targets at a molecular level. It also connects very well to the course on Precision Medicine. To address this, the EEC strongly recommends making a Bioinformatics course mandatory, and providing introductory programming in R and Python. Proficiency in bioinformatics is vital for handling the increasingly prevalent large omics datasets in biomedical research of tomorrow.

Additionally, the programme currently focuses solely on biomedical topics and clinical diagnosis, assuming graduates will predominantly enter careers in Clinical Laboratories. However, this narrow focus overlooks potential opportunities in other sectors of industry or entrepreneurship. Therefore, the EEC recommends introducing courses that cover the business and applied aspects of applied biomedical sciences. Topics such as entrepreneurship, starting a spin-off company (or why not “your own clinical laboratory”?), and intellectual property rights are crucial for translating research innovations into practical applications, fostering innovation, and equipping students to navigate the business aspects of biomedical industries effectively.

The Applied Biomedical Sciences programme will be offered in two languages: Greek and English. This presents challenges regarding teaching staff availability and workload. Delivering all courses in both languages could significantly increase the teaching burden of the teaching staff.

Moreover, offering the programme in Greek and English poses challenges in recruitment of teachers, as they need to be proficient in both languages. Currently, all faculty members are from Cyprus or Greece. To ensure a robust English programme, it is recommended to also recruit teachers from other countries. It is important to have international

teachers in an English training program, because they bring diverse perspectives, cultural insights, and global academic standards, enriching the learning experience.

2.2 Practical training

A key element of the training programme is the placement of the students at the Clinical Laboratories in course ABS306. However, this relies on the continued commitment of these external stakeholders to host these interns in their laboratories. Furthermore, the staff at these institutions may not have sufficient experience in supervising, training and assessing students. Therefore, the EEC strongly recommends establishing binding, long-term agreements with these stakeholders. These agreements should outline the allocation of students, specify the number of students involved, and detail arrangements for training and supervision. To prepare for contingencies, a strategy needs to be developed in case a stakeholder decides to withdraw from the programme. Additionally, the current allocation of students for the BMS306 course is currently unclear.

For research activities at the External Stakeholders, the students are required to travel to laboratories located off-campus. Clarification is needed regarding transportation arrangements for these visits.

Additionally, it is highly recommended to provide mandatory training for supervisors at external stakeholders in teaching skills and assessment. This training will ensure that supervisors are well-equipped to support and evaluate students effectively during their placements, and harmonize the training and assessment among the different stakeholders.

A risk is that the number of students that will enrol in the new Applied Biomedical Sciences programme is uncertain. It is aimed for 30 to 50 students. In case of an unexpectedly low or high number of students, the programme needs to be adjusted accordingly, which will pose risks for scheduling and resource allocation, especially for the practical training. Of course, this is a risk with any new educational programme. However, this risk is increased by offering the programme in two languages.

2.3 Student assessment

Regarding student assessment, the committee has no specific recommendations, except that it should be mentioned clearly in the course descriptions how the individual learning objectives are assessed to avoid that specific points are incompletely or even not at all included.

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
2.1	Process of teaching and learning and student-centred teaching methodology	Partially compliant
2.2	Practical training	Partially compliant
2.3	Student assessment	Compliant

3. Teaching staff (ESG 1.5)

Sub-areas

3.1 Teaching staff recruitment and development

3.2 Teaching staff number and status

3.3 Synergies of teaching and research

3.1 Teaching staff recruitment and development

Standards

- *Institutions ensure the competence of their teaching staff.*
- *Fair, transparent and clear processes for the recruitment and development of the teaching staff are set up.*
- *Teaching staff qualifications are adequate to achieve the objectives and planned learning outcomes of the study programme, and to ensure quality and sustainability of the teaching and learning.*
- *The teaching staff is regularly engaged in professional and teaching-skills training and development.*
- *Promotion of the teaching staff takes into account the quality of their teaching, their research activity, the development of their teaching skills and their mobility.*
- *Innovation in teaching methods and the use of new technologies is encouraged.*
- *Conditions of employment that recognise the importance of teaching are followed.*
- *Recognised visiting teaching staff participates in teaching the study programme.*

3.2 Teaching staff number and status

Standards

- *The number of the teaching staff is adequate to support the programme of study.*
- *The teaching staff status (rank, full/part time) is appropriate to offer a quality programme of study.*
- *Visiting staff number does not exceed the number of the permanent staff.*

3.3 Synergies of teaching and research

Standards

- *The teaching staff collaborate in the fields of teaching and research within the HEI and with partners outside (practitioners in their fields, employers, and staff members at other HEIs in Cyprus or abroad).*

- *Scholarly activity to strengthen the link between education and research is encouraged.*
- *The teaching staff publications are within the discipline.*
- *Teaching staff studies and publications are closely related to the programme's courses.*
- *The allocation of teaching hours compared to the time for research activity is appropriate.*

You may also consider the following questions:

- *How are the members of the teaching staff supported with regard to the development of their teaching skills? How is feedback given to members of the teaching staff regarding their teaching results and teaching skills?*
- *How is the teaching performance assessed? How does their teaching performance affect their remuneration, evaluation and/or selection?*
- *Is teaching connected with research?*
- *Does the HEI involve visiting teaching staff from other HEIs in Cyprus and abroad?*
- *What is the number, workload, qualifications and status of the teaching staff (rank, full/part timers)?*
- *Is student evaluation conducted on the teaching staff? If yes, have the results of student feedback been analysed and taken into account, and how (e.g., when planning in-service training for the teaching staff)?*

Findings

3.1 Teaching staff recruitment and development

The procedures for announcing new positions and recruiting new members of staff appear clear and transparent, at least as described in the presentations. This seems to apply also when part-time staff is recruited externally to support the programme with teachers on temporary contracts (that will then be evaluated and reviewed if/when a contract needs to be renewed). When asked, appointments were regarded as fair and gender equality issues or other similar bias was not raised as a problem in this context by the teaching staff.

In general, staff qualifications are adequate to achieve the objectives and learning outcomes of the B.Sc. programme, and to ensure that quality and sustainability of the teaching and learning are maintained or even developed. The EEC noted the description of the Personal and Professional Development Center at Frederick University (P²DF), which aims to provide “a range of development opportunities to faculty and staff that will enable them to enhance their professional and personal skills and ultimately reach their full potential”. It was discussed during the meeting with teachers that they are expected to take part in such development. Thus, there is a system in place for competence development of the teaching staff and everyone is encouraged to go regularly to such seminars and workshops but it was a bit unclear if and how this is monitored and whether it is followed up if somebody actually does not take part.

We also discussed the pedagogic models used and some teachers had tried the flipped classroom model and many mentioned case-based teaching. The Problem-based learning (PBL) or Team-based learning (TBL) formats are not planned to be used. Strikingly, if a certain pedagogic model is introduced or not appears to be mostly up to personal interest, ambition and drive towards pedagogic improvement in individual teachers. It would be more satisfactory if the pedagogic model for a certain course or part thereof would be the result of strategic discussion that ends with an informed decision based on the needs of students.

Thus, much of the pedagogical development work done by teachers appears to be on their own initiative for single courses (at least in other programmes since this cannot be evaluated yet for the Applied Biomedical Sciences programme). More encouragement and joint seminars for the whole team behind the B.Sc. programme could potentially improve this so that it becomes a natural thing to try new, innovative and student-centered learning techniques, also for the new programme. This will be up to the coordinators of the programme to initiate and monitor. Good examples from the most curious and driven teachers could be spread in the group of colleagues.

Promotions are based on a combination of achievements in “teaching, research, administrative work and social contribution and recognition” (in that order!) so one can at least hope that those who develop their teaching skills and formats are rewarded appropriately. One can also wonder how important teaching and pedagogic development really are for promotion. Research is often rated higher for promotion but this sometimes sensitive topic was not further penetrated.

A couple of clinicians took part in the EEC meeting with teaching staff. Upon specific question, it was felt that the clinical content was enough as described and some M.D.s will provide a medical perspective on various topics during the programme. Also, it was pointed out that the placements in the clinical laboratories would increase the clinical connection for the students. EEC’s conclusion is that there could probably be a bit more medical input to match the bioMEDICAL science aspects and improve understanding of the underlying pathogenetic aspects, diseases and patient perspective for which samples are taken and analyzed.

A special aspect concerned the idea to offer the new programme in both Greek and English. While this opens possibilities to recruit international staff, they still need to speak Greek, which limits the search field. It is unclear how many students will choose to enrol for each of the two languages offered and this also complicates the logistics and planning for the programme management.

3.2 Teaching staff number and status

It is the opinion of the EEC that the number of teaching staff is adequate to support the quality of the B.Sc. programme under evaluation. However, in accordance with CYQAA guidelines, it is deemed essential to maintain a composition of the teacher staff so that it consists of at least 70% full-time teachers, while it is possible to incorporate a 30% proportion of equally competent part-time/visiting professionals. So far, this does not seem to be a problem for this programme, given that teachers are mainly provided from the relevant departments and who are already employed and involved in other programmes. A minor fraction (4 of the 25 teachers involved, 16%) appear to be working on a visiting basis but this needs to be confirmed to be correctly interpreted by the committee, and of course also maintained going forward, by the Programme leadership. As discussed below, it is very important that teachers will be able to maintain their lines of research despite the additional teaching burden that is now planned for many of

them. This also includes being able to schedule experimental research when the teaching laboratories will be more heavily booked for student activities in the new programme.

3.3 Synergies of teaching and research

In general, the EEC thinks the level and degree of research activities among the teachers planned to be active in this programme, are adequate for the level of teaching that they are expected to do, although they could definitely improve. It was apparent that teachers who receive grants can “buy themselves free” from teaching during limited periods but it was not clarified how this may affect the Applied Biomedical Sciences programme. Already today, it sounds like teachers have a reasonable share of their time available for research activities but given that many of the teachers will need to teach more if the current programme is accredited, there is a risk that the percentage of time available for research is decreasing. Thus, the plans to expand the number of students may interfere with and threaten what appears to be a rather stable system. Therefore, the EEC wants to underline the importance that staffing follows the number of students. Otherwise, the intertwining of research and teaching may be at risk.

The University and the School have ambitious plans to increase the scientific output and improve the societal impact of its activities. This also includes innovations and patents. On a direct question, however, it seemed like very little (or no?) intellectual property has been secured and developed into patents from the school’s teachers/researchers since its start as a university in 2007. The EEC noted that the Department mentions a very broad range of research topics covered: in addition to cancer (and specifically thyroid cancer), the following topics were e.g. mentioned: “Precision medicine/proteomics and drug discovery/pharmacogenetics/innovative therapies using nanotechnology/evaluation of bioactive compounds/ development of biosensors/wearables.” Some will be carried out in collaboration with the Departments of Pharmacy and Nursing. While it is good that the ranking of Frederick University in general has increased lately, the EEC advises the involved departments to focus their research ambitions to fewer and more realistic themes that can still involve many of the teachers in crossdisciplinary research. Much of the research done nicely overlaps the broad field of biomedical science but to take the next step and increase the external funding for research (and thereby attract more competent and even international teachers down the line), the EEC recommends to limit the range of topics/ambitions to a limited, manageable number of strategic foci.

A final aspect that arose was the risk that experimental research will be restricted if the combined research and teaching labs are more heavily booked for student activities including the new programme. Thus, the Programme leadership must be vigilant so that teachers can still be given opportunity to perform biomedical research, both considering the increased number of students handled but also access to appropriate laboratories and equipment.

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Strengths

The School/Department should be happy to have recruited such a good group of teachers who appear well suited to deliver the courses included in this programme. Students from the pharmacy programmes mentioned how close they have been to their teachers (who were often the same as those now involved in the programme being evaluated here) and how much they had interacted, which was seen as a major plus and not always the case when they compared to other universities they had attended. It is good that many if not all staff members have active research projects going on, while enthusiasm still appeared real for the teaching aspects of their jobs.

Some teachers have tried to implement newer pedagogic models to engage students and involve them more, e.g. the flipped classroom approach.

Thanks to the low number of students expected in the beginning of this programme, it is expected that teachers can engage and supervise in a very personal way, which will foster a feeling of togetherness and contagious enthusiasm among the students. It is clear that many of the students who have chosen to continue their studies on a M.Sc. programme at the same University have done so thanks to close links to the teachers and their research projects.

It was noted that some students from other programmes had been able to publish their B.Sc. thesis essays as review articles in scientific journals. Teachers should encourage this good practice since it benefits the School twice and (at best) contributes to citations as reviews tend to do, which will become more important when ranking systems increasingly focus more on quality than quantity.

Areas of improvement and recommendations

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

Overall, the teacher situation for this planned B.Sc. programme appears to be under control already, as can be deduced from the above “findings” and “strengths” sections. However, further improvement in general is certainly possible and is in essence the purpose of this inspection. Accordingly, the EEC has identified a few areas that could improve the situation for the teaching staff, and thereby for the students. Most of the background for these areas can be found in the Findings sections C3.1-3.3 above (and sections C1 and 2 regarding bioinformatics) so the below will focus mainly on the recommendations regarding teaching staff.

3.1 Teaching staff recruitment and development

- * A clearer system for how to follow up and award competence development within the pedagogic field should be considered in order to encourage systematic and continuous improvement of teaching for the students.
- * Create incentives to test and implement new pedagogic models in the B.Sc. programme. This also has the potential to lead to scientific publications within the field of pedagogic development in biomedical education.
- * For teaching the Programme in the English language, it is highly recommended to recruit teaching staff from outside Cyprus or Greece, because this would bring diverse perspectives, enhance the program's global relevance, and ensure a high level of proficiency in English instruction.

3.2 Teaching staff number and status

- * Going forward and in order to future-proof the programme as well as the academic staff, hiring of a dedicated bioinformatics teacher should be considered as this topic needs to be expanded to meet the requirements on biomedical scientists of the future. If this is not possible financially or due to competition (since this competence is much sought after today), a visiting staff arrangement could be possible across the Schools or from staff at the Karaiskakio Foundation.

3.3 Synergies of teaching and research

- * Teaching skills and pedagogic merits should be as important as research when it comes to promotions and annual reviews.
- * Now that the publication numbers appear to be increasing for the School, it is time to turn the focus from quantity to the quality/impact/citations of the studies published by the teaching staff. This will be in line with changing recommendations in the ranking systems of the future. The EEC strongly believes it to be important for the

credibility of the B.Sc. programme that the teaching staff continues to improve the level at which they perform competitive research in the field of biomedical science. To help with this, a strategic discussion should be held that narrows the focus of the research fields that the Departments involved in this programme try to cover.

* The role of Deputy or Co-coordinator (written in both ways in the documentation) of the Programme should be formally clarified in comparison to the Coordinator to minimize the risk of confusion for the students and to make sure everyone is clear on who decides what.

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
3.1	Teaching staff recruitment and development	Compliant
3.2	Teaching staff number and status	Compliant
3.3	Synergies of teaching and research	Partially compliant

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

Sub-areas

- 4.1 Student admission, processes and criteria
- 4.2 Student progression
- 4.3 Student recognition
- 4.4 Student certification

4.1 Student admission, processes and criteria

Standards

- *Pre-defined and published regulations regarding student admission are in place.*
- *Access policies, admission processes and criteria are implemented consistently and in a transparent manner.*

4.2 Student progression

Standards

- *Pre-defined and published regulations regarding student progression are in place.*
- *Processes and tools to collect, monitor and act on information on student progression, are in place.*

4.3 Student recognition

Standards

- *Pre-defined and published regulations regarding student recognition are in place.*
- *Fair recognition of higher education qualifications, periods of study and prior learning, including the recognition of non-formal and informal learning, are essential components for ensuring the students' progress in their studies, while promoting mobility.*
- *Appropriate recognition procedures are in place that rely on:*
 - *institutional practice for recognition being in line with the principles of the Lisbon Recognition Convention*
 - *cooperation with other institutions, quality assurance agencies and the national ENIC/NARIC centre with a view to ensuring coherent recognition across the country*

4.4 Student certification

Standards

- *Pre-defined and published regulations regarding student certification are in place.*
- *Students receive certification explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed.*

You may also consider the following questions:

- *Are the admission requirements for the study programme appropriate? How is the students' prior preparation/education assessed (including the level of international students, for example)?*
- *How is the procedure of recognition for prior learning and work experience ensured, including recognition of study results acquired at foreign higher education institutions?*
- *Is the certification of the HEI accompanied by a diploma supplement, which is in line with European and international standards?*

Findings

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

4. Student admission, processes and criteria, student progression, recognition and certification

All the procedures regarding processes and criteria for student admission, progression, recognition and evaluation are generally clear and well described and presented. The regulations are in line with the Lisbon Recognition Convention. The programme is interested in applicants with a solid high school record (and sufficient knowledge of the English language if the student chooses the non-Greek option, at least this is how the EEC interpreted it). Concrete minimum grade thresholds are published for admission: a minimum grade of 75% in both Chemistry and in Biology, with an average grade of 15/20 in the secondary school leaving certificate. Remedy courses are offered to students not making the minimum grades. The EEC appreciates that the admission procedure aims at achieving a quick response to the students following their admission.

Given that the programme is Applied Biomedical Sciences, emphasis is correctly given to a strong background in Biology.

The Applied Biomedical Sciences programme will be offered in both Greek and English. The language requirements are thus also justified.

Regulations regarding student recognition of prior learning and work experience are pre-defined and a Transfer Credit Evaluation Policy are available and clear. For transfer students, enrolment and ECTS transfer is decided by an ad-hoc Credit Transfer Committee, strictly following the national regulations.

Policies for regular and effective communication between the teaching personnel and the students were described.

The programme is developing collaborations with foreign and local Institutions and the students will have the opportunity for placement and writing their theses in a scientific environment beyond that of the Frederick University. Frederick University participates in the Erasmus+ programme with the prospect that students may be able to do their thesis work in other EU countries.

Upon successful completion of the programme, the students will be awarded a B.Sc. degree. In addition, it is aimed that the students will fulfil the requirements for working in Clinical Laboratories as set by European and Cyprian standards and new regulations. It is also expected that they can register as such at the newly established Pancyprian Association of Biomedical Scientists.

Strengths

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

Emphasis is given on a strong background in Biology and Chemistry, which is correct for an Applied Biomedical Sciences programme.

The placement in local industrial stakeholders provides strong support to reach the teaching objectives. The compliance of graduates to new expected regulations for staff of Clinical Laboratories is a key strength of the programme.

The contribution of teachers with partial dedication recruited from professional activities and clinicians is highly valuable.

The staff is very interested in implicating students in the courses' evaluation procedure. The information given by the interviewed students reflects the positive attitude of Frederick University concerning this matter.

Areas of improvement and recommendations

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

Concerns were raised by the EEC concerning the difficulties to accommodate the advisable increasing number of students in the existing facilities (classrooms and labs). It should be considered that these facilities have to be shared with students from other degrees currently offered by the School, and also with experimental research performed by the teacher staff. It is strongly recommended to anticipate this situation by performing an accurate and future-looking plan regarding the availability of additional facilities, and set a cap on the maximum number of students that can be accommodated without jeopardizing other training programmes and research at the involved Departments.

The EEC thinks that lab experience is vital in a programme like this, although this is not under discussion and it is a key strength of the programme reviewed here, we believe that this point should be emphasized through both graduate and post-graduate studies.



Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
4.1	Student admission, processes and criteria	Compliant
4.2	Student progression	Compliant
4.3	Student recognition	Compliant
4.4	Student certification	Compliant

5. Learning resources and student support (ESG 1.6)

Sub-areas

5.1 Teaching and Learning resources

5.2 Physical resources

5.3 Human support resources

5.4 Student support

5.1 Teaching and Learning resources

Standards

- *Adequate and readily accessible teaching and learning resources (teaching and learning environments, materials, aids and equipment) are provided to students and support the achievement of objectives in the study programme.*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose.*
- *Student-centred learning and flexible modes of learning and teaching, are taken into account when allocating, planning and providing the learning resources.*

5.2 Physical resources

Standards

- *Physical resources, i.e. premises, libraries, study facilities, IT infrastructure, are adequate to support the study programme.*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*
- *All resources are fit for purpose and students are informed about the services available to them.*

5.3 Human support resources

Standards

- *Human support resources, i.e. tutors/mentors, counsellors, other advisers, qualified administrative staff, are adequate to support the study programme.*
- *Adequacy of resources is ensured for changing circumstances (change in student numbers, etc.).*

- *All resources are fit for purpose and students are informed about the services available to them.*

5.4 Student support

Standards

- *Student support is provided covering the needs of a diverse student population, such as mature, part-time, employed and international students and students with special needs.*
- *Students are informed about the services available to them.*
- *Student-centred learning and flexible modes of learning and teaching, are taken into account when allocating, planning and providing student support.*
- *Students' mobility within and across higher education systems is encouraged and supported.*
- *Students receive support in research-led teaching through engagement in research projects, mentorship from research-active faculty, and access to resources that enhance their research skills and critical engagement with current studies.*

You may also consider the following questions:

- *Evaluate the supply of teaching materials and equipment (including teaching labs, expendable materials, etc.), the condition of classrooms, adequacy of financial resources to conduct the study programme and achieve its objectives. What needs to be supplemented/ improved?*
- *What is the feedback from the teaching staff on the availability of teaching materials, classrooms, etc.?*
- *Are the resources in accordance with actual (changing) needs and contemporary requirements? How is the effectiveness of using resources ensured?*
- *What are the resource-related trends and future risks (risks arising from changing numbers of students, obsolescence of teaching equipment, etc.)? How are these trends taken into account and how are the risks mitigated?*
- *Evaluate student feedback on support services. Based on student feedback, which support services (including information flow, counselling) need further development?*
- *How is student learning within the standard period of study supported (student counselling, flexibility of the study programme, etc.)?*
- *How students' special needs are considered (different capabilities, different levels of academic preparation, special needs due to physical disabilities, etc.)?*
- *How is student mobility being supported?*

Findings

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

5.1 Teaching and Learning resources

Frederick University is divided over two campuses, at Nicosia and Limassol. In principle, the Applied Biomedical Sciences programme will be situated completely at the Nicosia campus and students will not have to travel to the Limassol campus. Based on interviews and a tour of the Nicosia campus, the EEC concluded that Frederick University offers comprehensive teaching and learning resources. The university has well integrated digital tools, equipped lab rooms for lecture recording and online teaching, largely driven by the COVID-19 pandemic. Frederick also uses an extensive online learning platform for training and assessment.

Faculty members are highly qualified and actively engaged in research and teaching. During interviews with teaching staff, it was evident that many have embraced modern pedagogical approaches as outlined in Section 2. The university provides robust technical and educational support for these methods.

Frederick University aims to increase student enrolment while maintaining its strength in the School of Health Sciences. However, since small class sizes foster intensive student-faculty interactions, it is crucial that this interaction remains strong even with increased student numbers.

5.2 Physical resources

During the physical tour, the EEC inspected lecture rooms, study rooms, laboratories, and the library, all of which left a positive impression. The laboratories were refurbished only a few years ago, and the facilities appeared mostly modern and well-maintained. Equipment needs for teaching basic molecular biology, chemistry and biochemistry techniques are adequately met. Lecture and study rooms are overall sufficiently spacious and equipped with necessary resources. The library is situated within 5 min walking distance from the School of Health Sciences building. The library is well-organized, offering ample access to books and online literature, along with designated study areas.

As detailed in Section 2, the ABS306 course offers internships at Clinical Laboratories, providing students with practical experience relevant to their future careers.

However, an area of concern is that Teaching Laboratories are also used for teaching in other educational programmes (Pharmacy and Nursing) and for scientific research by the staff members, as discussed further in Areas of Improvement and Recommendations.

While certain more advanced and costly techniques like flow cytometry, immunohistochemistry, and whole genome sequencing are not available on campus, partnerships with the Karaiskakio Foundation provide access. However, the terms of this are not completely clear as will be discussed further in Areas of Improvement and Recommendations.

5.3 Human support resources

From interviews with administrators, teaching staff, and support personnel, as well as from the Application for Evaluation document, the committee gathered that Frederick University is well-organized and responsive to student and staff needs. Mentoring programmes and psychological support services are in place to ensure a supportive campus environment.

5.4 Student support

The university demonstrates adequate support for students with diverse needs, including those with learning difficulties, hearing or vision impairments, physical disabilities, and psychological or emotional challenges. Current and former students from the Pharmacy programme provided positive feedback during the interviews.

Students are actively engaged in research projects, particularly through the rotation in Clinical Laboratories in course ABS306 and the internships in ABS408 (Undergraduate Thesis). Students can also choose to do the internship abroad, for example through Erasmus+ exchange programme. There is support offered for this by the Internationalization office.

Strengths

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

5.1 Teaching and Learning resources

Adequate teaching and learning resources are readily accessible.

Frederick University offers digital learning methods, including online learning and assessment modules.

Support and expertise in innovative teaching methods are readily available at Frederick University.

The teaching staff is well-qualified and appropriately sized for the expected number of students. It is the expectation of the EEC that the small class sizes will ensure robust and personalized interaction between students and faculty.

5.2 Physical resources

The lecture and study rooms, laboratories, and library are spacious, modern, and well maintained.

The laboratories are equipped with essential tools for teaching and conducting key biomedical research techniques, including all equipment for DNA and protein gel electrophoresis, western blotting, cell culturing, and more.

The library is well-equipped and features study areas that can be booked by the students.

5.3 Human support resources

The support staff actively engages in enhancing the learning and living experiences of undergraduate students.

The teaching staff demonstrates high enthusiasm and actively participates in research.

5.4 Student support

Comprehensive support is accessible to students across all levels. Importantly, specialized support for students with diverse needs is well-established and effectively organized (see Section 2).

Students have the opportunity to gain international experience through a research internship abroad.

Areas of improvement and recommendations

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

5.1 Teaching and Learning resources

While sufficient teaching resources appear to be available, there is a potential risk due to uncertainty about the number of students expected. This necessitates a high degree of flexibility from both teaching staff and administration, posing potential challenges. If a larger-than-anticipated number of students enrol, there may be constraints in space and an insufficient number of teaching staff. However, the EEC acknowledges that such risks are inherent in launching a new programme. The School of Health Sciences recognizes this risk and has implemented sufficient flexibility to adjust the programme as needed.

Nonetheless, a significant strength lies in the accessibility and interaction between students and teaching staff, as highlighted in interviews with current and former students of the Pharmacy programme. Preserving and nurturing this dynamic interaction should be prioritized as student numbers increase.

5.2 Physical resources

Two concerns were identified by the EEC:

The first concern is the dual use of Teaching Laboratories for educational programmes, including the Pharmacy and Nursing programmes, as well as for scientific research by the staff members. According to interviews, the laboratories are currently allocated 40% of their time for teaching purposes, leaving only 60% available for research. The EEC believes this arrangement already imposes constraints on research, requiring scheduling around teaching occupancy of the laboratories, and teaching and administrative duties of the staff members. This will be further exacerbated by the introduction of the new Applied Biomedical Sciences programme.

This issue underscores the importance of university lecturers actively engaging in scientific research. Such involvement enriches their teaching by integrating cutting-edge developments and current knowledge into their courses, thereby inspiring students and cultivating a culture of inquiry and innovation. Presently, this aspect appears insufficiently prioritized.

The proposed solution, suggested by the Head of the Department and programme Coordinators, is to expand laboratory capacity if necessary. However, this solution could take years to implement and thus potentially compromise the quality of research in the interim. Therefore, the EEC recommends ensuring that sufficient time and access to laboratory facilities are preserved for scientific research by staff members.

The second concern of the EEC is the programme's dependence on collaboration with the Karaiskakio Foundation for training in advanced and costly techniques such as flow cytometry, immunohistochemistry, and whole genome sequencing. It is understood that these skills will primarily be taught through internships offered in courses ABS306 (Laboratory Techniques in Biomedical Sciences/Professional Development) and ABS408 (Undergraduate Thesis). However, the Karaiskakio Foundation also hosts students from other universities across Cyprus, raising uncertainty about access for Frederick University students. This uncertainty is compounded by the potential prioritization of more experienced MSc students over less experienced BSc students.

To address this issue, the EEC strongly recommends establishing binding agreements with the Karaiskakio Foundation specifically for training in advanced techniques. This could involve dedicated course modules rather than relying solely on internships, ensuring consistent and equitable access for all students from Frederick University.

5.3 Human support resources

The human support resources seem excellent, and the EEC has no specific recommendations.

5.4 Student support

The student support seems excellent, and the EEC has no specific recommendations.

Please select what is appropriate for each of the following sub-areas:

Sub-area		<i>Non-compliant/ Partially Compliant/Compliant</i>
5.1	Teaching and Learning resources	Compliant
5.2	Physical resources	Partially compliant
5.3	Human support resources	Compliant
5.4	Student support	Compliant

D. Conclusions and final remarks

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

Based on the written and orally presented material, the EEC is of the opinion that the B.Sc. in Applied Biomedical Science programme is generally of good quality, and that the responsible team has made a great effort to design the presented programme outline. A major limitation for the EEC is of course that all that can be evaluated are plans on paper. The ability to execute them according to plan is yet to be proven, although the School has a good track record and the students interviewed from other programs appeared quite pleased with their educations and the support given by the university.

Below, some areas of particular importance and/or concern are listed, especially where the committee notes that there is potential for improvement.

Balance teaching of applied and research-oriented biomedical sciences

The objective of the programme is to train staff to meet the increasing demands of the job market, specifically in the rapidly expanding sector of healthcare provision. It aims to fulfil the current expectations and requirements of scientific and professional bodies, as well as societal needs, for the profession of Biomedical Scientist in the applied setting. This includes adhering to modern and evolving national and European standards and regulations that regulate clinical diagnostics. These standards and regulations should be part of the programme, as seems to be the case given that they will be covered in the courses Quality Assurance and Accreditation in Biomedical Sciences, Ethics for Biomedical Sciences, and Information Systems in Health (ABS104, ABS112, ABS206). Attention has been paid that the final degree contains a substantial percentage of the clinical laboratory placements and theory, in line with the time investment for these training elements.

A key strength of this programme is its collaborative development with stakeholders in Clinical Medicine, focusing on clinical diagnosis needs. The programme balances applied learning and research, ensuring that the students meet the new legislative requirements for working in a Clinical Laboratory. It is planned to be accredited by the newly founded professional body for laboratory medicine, the Pancyprian Association of Biomedical Scientists.

Simultaneously, the programme aims to prepare students with a solid background in research, offering comprehensive training across various subdisciplines of biomedical research. The faculty is highly qualified, actively engaged in both research and teaching, and considered the program's most valuable asset due to their enthusiasm, engagement, and competence. The programme is coherent and well-structured, with courses designed to build progressively on one another. This structure is supported by a relatively small team of 25 teachers, fostering close collaborations and seamless interaction among faculty members.

The EEC strongly believes it is crucial for the credibility of the B.Sc. programme that the teaching staff continues to enhance their performance in competitive biomedical science research. To support this goal, a strategic discussion should be held to narrow the focus of the research fields covered by the Departments involved in this program.

Improve teacher professionalization and recruitment

To foster systematic and continuous improvement in teaching, a clearer system for following up and awarding competence development within the pedagogic field should be considered. This approach would encourage the adoption and implementation of new pedagogic models in the B.Sc. program. Creating incentives for faculty to test and implement new pedagogic models, alongside the recruitment of international staff, will significantly enhance the program's educational quality and relevance.

For teaching the programme in English, it is highly recommended to recruit teaching staff from outside Cyprus or Greece. This would bring diverse perspectives, enhance the program's global relevance, and ensure a high level of proficiency in English instruction. It also has the potential to improve the research output from the implicated department(s). Moreover, teaching skills and pedagogic merits should be as important as research when it comes to promotions and annual reviews. Professors should be well-versed in modern teaching methods and capable of disseminating both theoretical and practical knowledge.

Additionally, the formal role of Deputy or Co-coordinator of the programme should be unified and clarified to minimize confusion among students and ensure clear decision-making processes.

Making sure student supervision and support remain of high quality

The overall programme offers excellent supervision and support, with strong supervision plans and robust quality assurance measures. The faculty is experienced in student supervision and support, and Frederick University offers training in this area. Comprehensive student support services are available, and the programme is designed to be flexible, adapting to the needs of students. As a comparatively small university, there is effective communication between teachers and students, which facilitates the programme's ability to adapt to student needs. Small class sizes promote personalized interaction, enhancing the learning experience.

Looking ahead, the university plans to expand student numbers by offering the programme in both Greek and English, thereby attracting more foreign students. While this growth is promising, it poses risks to the frequency and quality of interactions between students and staff, as well as potentially reducing the time staff can dedicate to their research. The dual use of laboratories for teaching and research further threatens the availability of research facilities. It needs to be assured that adequate access for research purposes is maintained.

As mentioned above, for teaching an English programme, it is recommended that the university recruit international teachers from non-Greek countries to enrich the programme with diverse perspectives. One option here could be to attract visiting scholars from other universities.

Uncertainty in student enrolment poses risks for programme adjustment and resource allocation. This risk is present in all new education programmes, but is exacerbated by offering the programme in two languages.

Finally, mandatory training for supervisors at the external stakeholders in teaching skills and assessment is recommended. Binding agreements for this should be in place with the external stakeholders.

Future-proofing the programme content

The programme aims towards the future, as it is designed together with societal stakeholders and addresses a clear emerging problem: the lack of staff for Clinical Laboratories in Cyprus. This is apparent from the programme, which is comprehensive and includes courses on all necessary skills in clinical medicine. It also takes into account upcoming legislation regarding the competence and registration of clinical laboratory staff.

Nevertheless, the EEC believes that further improvements can be made in the scientific content of the programme to prepare it and its students for the future. Specifically, the programme should include or expand modern concepts in biomedicine such as course topics on the human microbiome and its implications, bioinformatics, big data and health, and proactive aging and related regenerative medicine. Concerning the lack of bioinformatics, the EEC recommends to consider to recruit a dedicated bioinformatics teacher, or if not feasible consider a visiting part-time appointment, e.g. from the Karaiskakio Foundation.

Another notable caveat that the EEC recommends addressing is the lack of instruction on animal models. Additionally, offering courses on the business and entrepreneurship aspects of biomedical sciences, potentially as electives, would enhance the programme by providing students with a broader understanding of the field.

For future proofing of the programme, another suggestion is the establishment of a well-organized alumni society. This society would provide longitudinal information about the career and employment paths of graduates, serving as a pivotal quality index for the academic program. This feedback loop would be invaluable in continually refining and updating the curriculum to meet the evolving needs of the industry and society.

Ensure the practical aspects of becoming a biomedical scientist

A notable strength of the programme is the significant emphasis on practical work, offering extensive hands-on training not only in research labs but also with external stakeholders. Overall, the facilities to support this practical training are well-established and comprehensive.

A risk is that the successful placement of students in clinical laboratories is heavily reliant on the commitment of stakeholders. To ensure consistent and reliable student placements, the EEC recommends establishing binding, long-term agreements with these stakeholders. For contingency planning, a strategy has to be devised in case the stakeholder wants to quit or goes into bankruptcy. In addition, it is unclear to the EEC after scrutinizing the documentation how the rotation teams are divided for course BMS306.

A similar concern involves the training of advanced techniques that are not present in-house. The programme depends on the Karaiskakio Foundation for training students, but there is competition for access to these training opportunities from educational programs offered by other universities. To address this challenge, the EEC advises securing binding agreements with the Karaiskakio Foundation to guarantee dedicated training or even thesis slots for the students.

For the research activities at the external stakeholders, the students need to travel to laboratories that are situated outside the campus. It needs to be clarified how the students can reach these.

In summary, the proposed B.Sc. programme in Applied Biomedical Sciences has potential to fill a need on the educational market in Cyprus, especially given the new legislation that aims to formalize the competence and hands-on experience of staff in clinical laboratories. The programme has been designed with this in mind and in close collaboration with the “end users”, i.e. representatives for companies who will eventually employ the students graduating from this type of programmes. The EEC concludes that after some revisions of the proposal, there is no reason why this programme could not develop into an important and appreciated programme with increasing student cohorts and a dedicated teacher team who stay in close contact with the student throughout the four years of study. The EEC sees many strengths and examples of good practice in this programme. The implementation of the above recommendation will secure its validity when student cohorts become larger and more internationally



diverse. In this way, the programme can be future-proofed and stay relevant, thereby enabling that the highly set goal to provide society with tomorrow's biomedical laboratory scientists is fully achieved.



E. Signatures of the EEC

Name	Signature
Prof. Martin L. Olsson, chair	
Prof. Geert van den Bogaart, member	
Prof. Wladimiro Jimenez Pavedano, member	
Michalis Andreou, student representative	

Date: 15 June 2024