Decision of the Accreditation Commission of AQAS

on the Master programme:

"Molecular Biology and Genomics" (M.Sc.)

on the PhD-programme:

"Molecular Biology and Genomics"

offered by the Redeemer's University, Ede, Nigeria

Based on the report of the expert panel and the discussions of the Accreditation Commission in its 72st meeting on 3/4 December 2018, the Accreditation Commission decides:

1. The study programmes ""Molecular Biology and Genomics" (M.Sc.) and "Molecular Biology and Genomics" (PhD) offered by the Redeemer's University in Nigeria are accredited according to the AQAS criteria for Programme Accreditation.

   The accreditation is conditional.

   The study programmes essentially comply with the requirements defined by the criteria and thus the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF) in their current version. The required adjustments can be implemented within a time period of nine months.

2. The conditions have to be fulfilled. The fulfilment of the conditions has to be documented and reported to AQAS no later than **30. September 2019**.

3. The accreditation is given for the period of **six years** and is valid until **30. September 2025**.

Conditions:

1. The course handbook for the Master programme must be revised: intended learning outcomes (ILOs) have to be defined in much more detail. Contact hours, assessment methods, student workload and literature references have to be included. A recommended reading reference list for each course should be published and updated regularly.
2. QA processes and responsibilities must be fully documented:
   a. A chart must be handed in to show the different levels of the QA system at Redeemer's University and distinguish between central level and department level. It must be shown how the different stakeholder groups are involved in the QA system.
   b. Feedback loops have to be included to inform stakeholders about the (aggregated) outcomes of the QA processes.

c. Formal mechanisms such as questionnaires for alumni of both programmes have to be developed which include an assessment of their professional career and refer to the programme as a whole.
d. Performance indicators for both programmes must be included in the QA instruments.

3. A table must be developed which allows an alignment of the credit system used by the University with the European ECTS system.
4. A clear timeline of tasks for semesters 3 and 4 of the Master Programme has to be made available (for example a Gantt chart for each semester of the course has to be part of the course information).
5. The responsibilities for the coordination of the programme have to be shared between the senior staff members and be made publicly available.
6. For the assessment of the resources, the University must hand in documents showing the e-journals available through the library.

The following **recommendations** are given for further improvement of the programmes:

1. Different stakeholders (including students) should be represented in the committees of the programmes.
2. More opportunities for M.Sc. students to carry out genuine genomics research should be provided.
3. A structured, systematic approach to teacher training on educational methods and procedures of good practice should be introduced.
4. For the PhD a timescale which key milestones need to be set up and outcomes of each activity need to be clearer explained. Moreover, a basic course in molecular biology and genomics to bring students admitted from diverse backgrounds to the same level should be implemented.
5. M.Sc. and PhD students should be encouraged to perform internships in the industry. Where possible even parts of the research of the PhD programme should be carried out in collaboration with the industry and at the facilities of industrial partners abroad.
6. Additional course offers in economics could be considered: for instance, project management, quality assurance, finances, etc.
7. The University should check opportunities for external certification of the English skills of its students (e.g. TOEFL or similar).
8. In the admission process students should be informed about the assessment criteria prior to the interviews.
9. Redeemer's University should introduce a workload system which is based on the overall workload of students.
10. ACEGID should upload all relevant information about the programme, including course syllabi to the programmes´ website.

With regard to the reasons for this decision the Accreditation Commission refers to the attached assessment report.

Experts' Report

on the Master programme:

"Molecular Biology and Genomics" (M.Sc.)

on the PhD-programme:

"Molecular Biology and Genomics"

offered by the Redeemer's University, Ede, Nigeria

Visit to the University: 3-6 September, 2018

Panel of Experts:

Prof. Hendrik Pieter de Koning	University of Glasgow, Professor of Parasite Biochemistry and Pharmacology, Great Britain
Prof. Dr. George William Lubega	Makerere University College of Veterinary Medicine, Head of Department of Biomolecular Resources & Biolab Sciences, Uganda
Dr. David Kitz Krämer	Grünenthal GmbH, Aachen, Germany (Representative of the Labour Market)
Jorge Moreno Herrero	University of Mainz (PhD student; student expert)

Coordinators:
Doris Herrmann
Ronny Heintze

AQAS, Cologne, Germany

I. Preamble

AQAS – Agency for Quality Assurance through Accreditation of Study Programmes – is an independent non-profit organisation, supported by more than 90 member institutions, both higher education institutions (HEIs) and academic associations. Since 2002, the agency has been accredited by the German Accreditation Council (GAC). It is therefore a notified body for accreditation of higher education institutions and programmes in Germany.

AQAS is a full member of ENQA and also listed in the European Quality Assurance Register for Higher Education (EQAR) which confirms that our procedures comply with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), on which all Bologna countries agreed as a basis for internal and external quality assurance.

AQAS is an institution founded by and working for higher education institutions and academic associations. The agency is devoted to quality assurance and quality development of both academic studies and teaching in higher education institutions. The activities of AQAS in accreditation are neither restrained to specific academic disciplines or degrees nor to a certain type of Higher Education Institution.

In recent years many higher education institutions have set up doctoral programmes (PhD-programmes) in order to boost the structured qualification of early stage researchers by providing support and guidance on a range of levels i.e. subject-specific, organisational, intellectual and/or financial.

II. Accreditation procedure

This report results from the external review of the Master programme in “Molecular Biology and Genomics” and the PhD-programme “Molecular Biology and Genomics” offered by Redeemer’s University in Nigeria.

1. Criteria

The Master programme is assessed against a set of criteria for programme accreditation developed by AQAS. The criteria are based on the “Standards and Guidelines for Quality Assurance in the European Higher Education Area” (ESG) 2015. To facilitate the review each criterion features a set of indicators that can be used to demonstrate the fulfilment of the criteria. However, if single indicators are not fulfilled this does not automatically mean that a criterion is not met. The indicators need to be discussed in the context of the programme since not all indicators necessarily can be applied to a programme.

The PhD-programme is assessed against the AQAS criteria for the accreditation of structured doctoral programmes. The accreditation by AQAS is based on the following key concepts:

- The doctoral thesis is an independent, original academic piece of research. It can take the form of a monograph or a cumulative dissertation. The assessment of the originality is based on a set of criteria:
  - selection of the research topic,
  - formulation and development of questions around the research topic,
  - decision regarding the use of suitable methodological tools and methods,
  - the scientific research, and

- the discussion and publication of research results.

- Doctoral programmes should foster subject-specific knowledge and, if possible, facilitate cross-disciplinary perspectives and inter-disciplinary exchanges.
- Doctoral programmes are carried out and completed within a specific timeframe.

The panel of experts was asked to assess both programmes on the basis of the relevant criteria and discuss the programmes separately, when needed.

2. Approach and methodology

The initialisation

The University mandated AQAS to perform the accreditation procedure in March 2018.

The University produced a Self Evaluation Report (SER) which describes both programmes (Master and PhD). In April 2018, the African Center of Excellence for Genomics of Infectious Disease (ACEGID) handed in a draft of the SER together with the relevant documentation of the study programme and an appendix.

The appendix included e.g.:

- ACE Student Survey Results
- Students' Handbook
- Table with Publications of teaching staff
- Data on labs and equipment
- Overview over Biological Journals
- Academic regulations for Master and PhD-programmes.

AQAS checked the SER regarding completeness, comprehensibility and transparency. The accreditation procedure was officially initialised by a decision of the AQAS Accreditation Commission (AC) on 14/15 May 2018. The final version of the SER was handed in at the beginning of August 2018.

The nomination of the panel of experts

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective discipline/s, the labour market and students are involved. Furthermore, AQAS follows principles for the selection of experts of the European Consortium for Accreditation (ECA).

The Accreditation Commission nominated in July 2018 the before mentioned expert panel. AQAS informed the University about the members of the expert panel and the University did not raise any concerns against the composition of the panel.

The preparation of the site visit

Prior to the site visit, the experts reviewed the SER and submitted a short preliminary statement including open questions and potential needs for additional information. AQAS forwarded these preliminary statements to the University and the panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

The site visit

After a review of the Self Evaluation Report, a site visit to the University took place from 3-6 September 2018. On site, the experts interviewed different stakeholders, e.g. the management of the

University, the programme management, teaching and other staff, representatives from the labour market as well as students and graduates, in separate discussions and consulted additional documentation as well as student work. The visit concluded with the presentation of the preliminary findings by the group of experts to the University's representatives.

The report writing

Following the site visit, the expert group drafted the following report, assessing the fulfilment of the AQAS criteria for programme accreditation and doctoral programmes. The report included a recommendation to the Accreditation Commission. The report was sent to the University for comments.

The decision

The report, together with the comments of ACEGID, forms the basis for the AQAS Accreditation Commission to make a decision regarding the accreditation of both programmes. Based on these two documents, on 3/4 December 2018 the Accreditation Commission took its decision on the accreditation. AQAS forwarded the decision to the University. The University had the right to appeal against the decision or any of the imposed conditions.

In January 2019, AQAS published the report and the result of the accreditation as well as the names of the panel of experts.

III. General Information on the University

Standard PhD programme:
The institution is entitled to award a doctorate.

The Redeemer's University in Ede/Nigeria was established in 2005 by the Federal Government, which granted an operating license to the University. As stated in the SER, the organizational structure consists of the General Overseer, who represents the proprietor of the University, the Redeemed Christian Church of God. The University is governed by a Governing Council (led by the Chancellor and supported by the Vice-Chancellor and the Deputy Vice Chancellor who are appointed by a Board of Trustees). Additionally, the administrative governance of the University is conducted by the University Senate which consists of the Vice-Chancellor and two Deputy Vice-Chancellors, four representatives of the Redeemed Christian Church of God, five appointees by the Board of Trustees and four representatives of the professors. As stated by the University, the University operates with a two-tier structure of the collegiate system which is made up of the college and department.

Currently there are five colleges (College of Humanities, College of Management Sciences, College of Natural Sciences, College of Basic Medical Sciences, College of Law and apart from that the College of Postgraduate Studies) in the University. According to the SER, the Redeemer's University has a total staff of 367 members, which includes academic (155) and non-academic (212) staff. The student population is 1,724 students (with a nearly 50-50% ratio of male and female students).

The programmes under review are based in the Department of Biological Sciences and amplify the range of the department, which offers at the moment a "Microbiology" study programme with specialities in medical microbiology, food microbiology, environmental microbiology and pharma-

ceutical microbiology. The Department of Biological Sciences supports the centre by nominating a postgraduate coordinator, who has monitoring responsibilities under the Head of Department.

The programmes are driven by the African Center of Excellence for Genomics of Infectious Disease (AGECID). ACEGID is part of the African Centre of Excellence project, which was launched by the World Bank in 2013. The M.Sc./Ph.D programmes "Molecular Biology and Genomics" are drawn from the College of Natural Sciences, namely the Department of Biological Sciences and the Department of Chemical Sciences. Both M.Sc. and Ph.D. programmes started in 2015 and received accreditation by the National Universities Commission (NUC) in Nigeria in 2017.

IV. Assessment of the study programmes

1. Policy and Procedures for Quality Assurance

Standards MA programme:
The programme is subject to the Higher Education Institution's policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.
A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.
The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders. [ESG 1.1]
Standards PhD programme:
The results of the internal quality assurance management are taken into account for the further development of the doctoral programme.

Description

As outlined by the University, it has several quality assurance instruments regarding evaluation of programme impact, benchmarking, internal feedback loops and performance audits in place. The aim of Redeemer's quality assurance system is to work in accordance to the University's overarching mission to increase the number of well trained students, to nurture entrepreneurship and to emphasize studies that cover societal, economic or technological needs in Nigeria. Breaking those mission goals down into specific academic objectives, the University highlights the importance of development through research and staff development, the promotion of international cooperation (be it research, staff or student exchange) and providing an environment that secures the acquisition of knowledge in all fields as their main goals.

To measure the impact of their programmes, the University allegedly carries out evaluations on a regular basis: this might cover the evaluation of developmental needs of a certain programme (e.g. to implement or change elective courses in each programme), the evaluation of the effectiveness of student internships (done in close interaction with the industry supervisor) or feedback mechanisms between Redeemer's and the future employers.

As stated in the SER, the University carries out benchmarking activities to identify areas of strength and weakness. This is meant to enable continuous positive measures to upgrade the quality of the programme in order to attain academic excellence. This includes the maintenance of national regulations (made by the national education authorities), faculty exchange between national and international universities, monitoring of international publications and the inclusion of members from both public and private sectors in the University's Academic Advisory Board.

The University indicates furthermore that it has in place a regular system to obtain feedback from faculty members, students and other university staff. This feedback mechanism is used twice a year by both lecturers and students. The feedback from the lecturers covers their teaching performance, on-going research and availability of students on a course-by-course basis, whereas students' feedback consists of online questionnaires at the end of each course in order to evaluate course materials, course delivery and value of the course. This is supported informally through a mentorship programme and feedback to the group coordinators. The summary of the data completed by students and faculties are assessed and are used to inform all necessary policies and any challenges that may require attention. In order to get a high backflow, the assessment by the students has to be completed before the academic results can be seen online. Faculty members with poor assessments are counselled, in order to make amends and improvements on their performance. During the site visit ACEGID emphasised that due to the small number of students most of the feedback takes place in the lessons and meetings.

For the students a handbook is offered with general information on all programmes offered by Redeemer's University which includes short descriptions of all courses. According to SER the handbook is updated once every five years following the accreditation by the national accrediting body, National Universities Commission (NUC).

Furthermore, the University carries out an annual evaluation regarding the general university's performance as against its set targets and objectives for the year. The final report is presented to the Board of Trustees and serves as a basis for setting new targets and development plans. This annual evaluation covers areas such as student enrolment, academic staffing level and non teaching staff.

Additionally, the World Bank evaluates the programme on an annual basis and monitors students' satisfaction.

Experts' Evaluation

Based on the evidence provided during the visit and the interviews with the different groups, the panel of experts was able to confirm that within the University and for the both programmes, that have to be assessed, there are defined responsibilities. The faculty, ACEGID and the programme coordinator all have a defined scope of responsibilities both content and administrative-wise. The responsibilities for the administration and the quality assurance of the doctoral programme are also defined. The panel of experts is therefore convinced that processes and procedures are in place and it was clearly observed that the different groups of interest, especially students, are very well aware of the responsible persons/instances for different aspects of the programme. Nevertheless, the panel of experts came to the conclusion that many aspects of the management of the programme take place on an informal level, and that many of the implemented processes or responsibilities are not fully documented. Due to the needs of a professional programme and quality management the documentation must be up-to-date and complete. Because of the expected growth of student numbers in both programmes in the upcoming semesters, the University is planning among different actions, to have defined programme coordinators for the MSc and PhD programmes in place (currently there is one for both programmes). The experts support this decision.

The courses of both programmes have a short description of the content and this information is also available to different stakeholders, because it is documented in the student handbook and uploaded to the programme website. The experts appreciate the student handbook as a service tool to inform the students, because it contains important information such as different evaluation forms that can be used in the courses of the programmes, the regulations for examination and grading and overall programme structure. Especially for the PhD programme, the handbook does

contain specific information regarding the different persons and committees involved in the evaluation of the PhD thesis and its defence.

Nevertheless, the provided course descriptions do not represent and should not be taken as equivalent of descriptions that are in line with the good practice requested in the European Standards and Guidelines (ESG), because they lack information on course elements, contact hours, intended learning outcomes (ILOs), assessment methods and grading, student workload and literature reference. Although, the students are aware of some of the aspects that would be part of such a course handbook, there is a lack of formally documented information and the gap between formal and informal information must be closed. A specific handbook with detailed descriptions of the courses is needed for both programmes as well as the integration of both programmes (with short descriptions) in the student handbook. **[Finding 1]**

The panel of experts evaluates the current quality assurance policies at the University positively, because it is a fundamental pillar of the strategic plan of the University. Indeed, during the visit and especially during the different interviews with the management of the programmes, the graduate school faculty and the Rectorate of the University, it became clear to the panel of experts that the University has established a solid base for the further developing of the QA system within the University. Several positive aspects have already been successfully implemented, such as: evaluation of the teaching staff involved and feedback loop to assure that teaching staff receives a full report on the aspects that were evaluated by the students. The questionnaires for students include key aspects related to each individual course/teaching staff, but there are no categories that enable the university department or the course coordinators to evaluate more general aspects of the programme. There is a need to introduce evaluation forms that refer to this general satisfaction, so that both students and alumni can evaluate the programme, the general learning outcomes and its feasibility, so that also improvements on this level can be guaranteed. **[Finding 2]**

The panel of experts did observe during the visit that teaching staff, coordinators and students do have a dynamic informal communication regarding the programmes and in the past meetings took place to deal with the development of the programme. The coordinators and students discussed weaknesses and possible improvements, which were apparently implemented. This example of a “quality culture” is highly appreciated by the experts but has yet to be changed from an informal to a formal level. There is no official structure such as a teaching or quality committee of the programme that would deal with aspects, having involved the different stakeholders (including student representatives). **[Finding 3]** The panel of experts is not quite sure weather this observation is also true for the University in general but it would be helpful for Redeemer’s University if there will be a representation of the different stakeholder groups in its committees.

During the site visit the panel of experts understood that teaching staff receives a direct feedback on the outcomes of the students’ course evaluation. Nevertheless, there seems to be only a partial implementation of feedback loops within the system, since the University community does not get much information about the evaluation processes and the quality assessment. Thus, the experts would encourage the University to further develop and implement clearly defined formal and documented QA-processes. These must include feedback loops to inform all stakeholders involved. It would be helpful if the publication of the results for the stakeholders would be done in an aggregated manner. **[Finding 2]** This information policy could also have an impact on the other programmes offered by Redeemer’s University and on the development of the institution as a whole. Furthermore, it would be advisable for reasons of transparency that the University develops a clear chart showing the different structural levels of the QA system and how the different stakeholders are involved. **[Finding 2]**

Another element that was detected trough the accreditation process is that the University does not have implemented a tool to evaluate students´ workload. The credit system in Nigeria is strictly based on contact hours and does not include any assignment of credits for the self-learning time. Thus, it is difficult to align the Nigerian system of workload calculation with the system used in Europe. Even though through the interviews, the experts were positively convinced by the students that for both programmes the regular workload is reasonable and does not unduly stress the students, it would be necessary to have a tool that allows determining the specific workload of students within the different modules in both programmes. The University must develop a kind of table that shows the workload for each defined module of both programmes and allows a comparison of the credit system at Redeemers University with the European ECTS system. This would also support students´ mobility. **[Finding 4]**.

Since students are having external practical internships at different companies/institutions, it would be of interest to have their external supervisors involved in the QA evaluations to get an external feedback on the general skills and competences of the students. It is currently difficult to assess how external stakeholders are involved in the different structures of the QA system. The panel of experts was informed during the site visit that informal elements are implemented to guarantee a follow-up of the alumni, organised by an alumni association which is in close contact with ACEGID. Nevertheless, the experts would encourage the centre to develop a formal mechanism such as questionnaires for alumni of both programmes which must include an assessment of their professional development, provides an impression of their overall skills/competences and refers to the programme as a whole. **[Finding 2]**.

Conclusion

The criterion is only partly fulfilled. There is a strong commitment of Redeemer's University towards quality and an obvious quality culture at ACEGID. Still, many processes take place on an informal level and have to be brought to a more formal level:

1. Transparency has to be created concerning the aims and the content of both programmes. For the Master programme a course handbook has to be provided in which the intended learning outcomes have to be defined in more detail. Contact hours, assessment methods, student workload and literature references must also be included. It would also be useful to integrate both programmes offered by ACEGID in the Student Handbook.
2. QA processes and responsibilities must be fully documented:
    a. A chart has to be handed in to show the different levels of the QA system at Redeemer's University and distinguish between central level and departmental level. It must be shown how stakeholder groups are involved in the QA system.
    b. Feedback loops have to be included to inform stakeholders about the (aggregated) outcomes of the QA processes.
    c. Formal mechanisms such as questionnaires for alumni of both programmes have to be developed and include an assessment of their professional development and refer to the programme as a whole.
3. Different stakeholders (including students) should be represented in the committees of the programmes.
4. A table must be developed which allows a comparison of the credit system used by the University with the European ECTS system.

2. Quality of the Curriculum

Standards MA programme:
The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date with relation to the relevant field. The design of the programme supports achievement of the intended learning outcomes.

The academic level of graduates corresponds to the requirements of the appropriate level of the European Qualifications Framework.

The curriculum's design is readily available and transparently formulated. [ESG1.2]

Standards PhD programme:
The institution defines the aims of the doctoral programme.

The doctoral programme is aligned with the aims of the defined qualification.

The doctoral theses provide evidence that the appropriate level on the European Qualifications Framework (EQF) or the respective level on the national qualifications framework for the award of Higher Education degrees have been achieved.

Doctoral programmes are structured in such a way - with regards to the research content and the required time - that students are enabled to progress efficiently through all stages of their research and achieve their doctorate within an appropriate timescale.

Description

M.Sc. "Molecular Biology and Genomics"

According to the Self Evaluation Report the M.Sc. "Molecular Biology and Genomics" is designed to be completed within two years (four semesters). The programme has a modular structure and each module has between two credit units (except for the research project, which has six credit units). The curricular structure aims to be theoretical followed by practical experience. The overall aim of the study programme is to impart knowledge of genetic tools to address challenges of infectious diseases in order to control and eradicate major public health issues in Africa.

As stated by the University, the study programme is multidisciplinary in nature and involves biology, biochemistry and bioinformatics to address the challenges of infectious diseases properly. The students must undertake courses such as advanced cell and molecular biology, research techniques, bioinformatics, bioethics, structural biology and comparative genomics. In addition to the core molecular biology and genomics courses, students also undertake courses such as advanced public health microbiology, advanced virology, advanced parasitology, and antimicrobial chemotherapy.

The Master programme is based on general courses, core courses and elective courses. The general courses cover modules such as "Research methodology", "Statistical methods for Sciences" and "Management & Entrepreneurship", whereas the elective courses cover field specific modules such as "Advanced Tropical Parasitology", "Advanced Bacteriology" or "Antimicrobial Agents & Chemotherapy".

Furthermore, students undertake an up to 12 weeks internship with genomics development and applied genomics industries (diagnostics laboratories, hospitals) in the programme.

PhD "Molecular Biology and Genomics"

In accordance with the ACEGID project, the doctoral programme aims towards the genomics of infectious diseases in relation to West Africa. As stated in the SER, the doctoral programme mainly carries out research in the field of Viral Haemorrhagic Fevers, Malaria, Arboviruses or Lassa fever virus and potentially other pathogens.

The PhD programme "Molecular Biology and Genomics" is designed to equip doctoral graduates with adequate knowledge of molecular biology and genomics and the technologies to conduct research in the field of infectious diseases with specialisations in subfields such as pathogen discovery, diagnosis of infectious diseases or development of drugs and vaccines against biological targets.

The PhD programme is meant to be primarily research. However, it is stated that the Departmental Postgraduate Committee may prescribe some courses with a maximum total of 12 credit points. Regarding the structure of the programme, all students have to complete so called foundational courses which cover courses in "ICT & research methodology" or "Statistical methods for sciences". Additionally, a doctoral student has to complete core courses in the field of bioethics and bioinformatics.

Most of the time of the PhD course is dedicated to students´ own research and their thesis. Students sometimes travel to collect samples or data on their research topic and then return to work in the labs of Redeemer's University. It is indicated that the PhD programme in Molecular Biology and Genomics runs for a minimum of six semesters and a maximum of eight semesters.

Experts' Evaluation

M.Sc. "Molecular Biology and Genomics"

According to the Self Evaluation Report the M.Sc. "Molecular Biology and Genomics" is designed to be completed within two years (four semesters). The programme has a modular structure and each module has two credit units (except for the research project, which has six credit units). In addition, there is a Postgraduate Foundation course that carries no credits but must be passed, focussing on generic skills, ethics and leadership with course titles including "Research methodology", "Statistical methods for Sciences" and "Management & Entrepreneurship".

The curricular structure of the first two semesters is theoretical followed by practical experience, like described above. The overall aim of the study programme is to impart knowledge of genetic tools to address challenges of infectious diseases in order to control and eradicate diseases that are major public health issues in Africa. As stated by the University, the study programme is multidisciplinary in nature and involves biology, biochemistry and bioinformatics to address the challenges of infectious diseases properly. The students shall undertake trainings in courses such as advanced cell and molecular biology, research techniques, bioinformatics, bioethics, structural biology and comparative genomics.

Students undertake a 6 to 12 weeks internship in Semester 3, within companies, hospitals, diagnostics laboratories etc., preferably undertaking work on molecular biology, molecular diagnostics, genomics or other relevant topics, as available. A report of this research experience is to be presented and assessed. The panel of experts understood from the discussions during the site visit that semester 4 is a larger research project, leading to the production of the Master thesis. The students must develop and write a research proposal, and, once approved, put this into practice. It is unclear, however, how long the students are expected to work on (1) the proposal (2) the practical work and (3) the thesis writing, or where the practical work is being conducted. Notably, "Research Project MBG 822" is listed on p. 23 of the SER as in semester 2, and in the "Proposal for Postgraduate degree programmes in Molecular Biology and Genomics" as the sole activity in

semester 3. In neither case is there a mention of a semester 4 or what activity is associated with it.

The SER states that “every teaching class is followed by practical sessions that is applied for research involved in the study programme”. This seems to indicate that every taught module in the Master programme has a practical component relevant to the subject matter contained in said module, thus supporting the theoretical content with hands-on experience. If this interpretation is correct, it is very good practice but should be supported by more information on the exact number of teaching hours in lectures and practicals for each block. **[**see **Finding 1]**

The course documentation is at the moment inadequate and confusing (see above). Terms of internship and research project are used but it is unclear whether these are the same thing or how much time is allocated for the various phases of the project (design, proposal, practical work, thesis writing). Nor do guidelines for the written proposal or thesis appear to be available.

For each of the semester 1 and 2 courses, far more detailed information should be available. The staff member principally responsible for each module should be identifiable from the distributed course material, as should the overall coordinator for the Master course. The title for each lecture should be given and associated with a named lecturer plus the intended learning outcomes (ILOs). The number of hours of practicals should also be listed for each block, with a short description of the work. **[see Finding 1]**

A clear timeline of tasks for semesters 3 and 4 has to be available, for example a Gantt chart for each semester of the course should be part of the course information. **[Finding 5]**

For the research components, the panel of experts requests that ACEGID offers more opportunities for students to carry out genuine genomics research. **[Finding 6]** Most of the theses the experts viewed investigated single genes, e.g. through PCR and RFLP and this does not fully reflect a Master degree in Molecular Biology and Genomics of Infectious Diseases.

The panel of experts encourage the University to introduce a structured, systematic approach to teacher training beyond mentorship by senior staff. For the long-term development and competitiveness of the course it is important that (younger) staff are trained in educational methods and procedures of good practice, and that this training is provided by professionals in higher education. **[Finding 7]** Teaching staff should be required to reflect on their teaching methods and occasional peer review of teachers should be part of quality control.

The Master in Molecular Biology and Genomics of Infectious Diseases course does not appear to feature in the Redeemer’s University Student Handbook; this should be remedied. [see Finding 1]

PhD “Molecular Biology and Genomics”

The aims of the PhD programme are stated as to produce graduates qualified to use molecular biology and genomics tools to manage infectious diseases of public health importance either in human or animals especially in Africa

The doctoral programme is planned to run for a minimum of 6 semesters and a maximum of 8 semesters. It is primarily by research, but candidates may have to undergo certain courses if they obtained the M.Sc. from another University. Some courses, not more than 12 credit units, may be prescribed by the department for certain candidates although the circumstances to occasion this are not very clear. However, candidates must complete all the modules of foundational courses which include Critical reading and thinking, Thesis writing and Academic Ethics, Proposal writing, Research ethics and Leadership, communication skills, Reporting and Conducts. In addition, a candidate shall:

- Review and present a seminar on a current trend in genomics and/or infectious diseases
- Submit and defend a research proposal
- Present a seminar on research progress at least once in a session
- Undergo a 6-week internship in a relevant organization
- Carry out research on a relevant infectious disease of Africa
- Publish at least two peer-reviewed articles or accepted manuscripts prior to defending the thesis.

To be admitted to the PhD programme candidates must have had (i) 5 credits including English, Mathematics, Biology (ii) a Bachelor's degree in no specified areas (iii) a Master's degree in microbiology, Molecular biology/Genetics, Biochemistry, Zoology or other related life sciences subject with CGPA 4.0/5.0 and dissertation score not lower than 60% (iv) adequate intellectual capacity, maturity and effective decision making and problem-solving potential.

Although a single seminar in genomics is prescribed, the instruction pathway for every candidate from such diverse backgrounds to be brought to the same level and obtain enough skills in molecular biology and genomics is not fully explained. Therefore it would have been helpful for the experts if the ILOs for the programme were more detailed. **[see Finding 1]**

Due to the request from the World Bank to go through an accreditation in 2018, ACEGID has not yet been able to provide completed PhD theses (or associated research articles or manuscripts). The lack of these documents made it difficult for the panel of experts to gauge the level of genomics therein, or the quality of research undertaken by the PhD students. A list of PhD candidates was presented in the SER but only 5 persons were given as doing research in the area of molecular biology and genomics. The students' research titles and thesis proposals were not available for the expert group to appreciate whether learning outcomes were aligned with programme objectives or to determine the level of standards (see above). However, the procedures for ensuring independent original research are in place, just waiting to be translated into tangible outcomes.

The panel of experts considers that the programme is very good and capable of producing good graduates and theses, but the curriculum needs a review so that the instruction pathway is clearer and externals can also understand how a candidate graduates with enough skills in molecular biology and genomics. For example, a basic course (2 credits) in molecular biology and genomics would be welcome in order to bring students admitted from diverse backgrounds up to the same level, or a set of reading assignments and/or tutorials in genomics. **[Finding 8]** If seminars only must be relied on, they may be structured as a course and given about 2 credit units per semester or 1 seminar per week. Further, as it is written in the current curriculum that candidates must do research on infectious diseases of Africa, it can similarly be added that part of the research methodology must involve genomics. The above changes would make the programme more rigorous and better equipped to meet its objectives.

Internships

In the discussions during the site visit the labour market representatives pointed out that a sufficient number of possible placements for the students from Redeemer's University exist in Nigeria. On the other hand, the quality of these placements is not very transparent for the experts to assess, but there seems to be a severe lack of companies in the area of Microbiology, beyond routine diagnostics, mostly in hospitals/clinics and this may lead to a different quality of internships than students may find abroad. Due to this circumstance, the students need to find internships and collaboration possibilities elsewhere than in Nigeria, if they strive to acquire new skills.

Interactions with biotechnology companies appear to exist, however, it has been recognized by the faculty that this needs to be expanded upon, and the faculty at Redeemer's is tackling the issue as best they can. The students were clear about their commitment to become researchers. The panel of experts had the impression that somewhat less effort is put into the establishment of industrial interaction than cooperating with other academic institutions. Intensified effort in finding industrial partners that could accept students for internships would be advisable. The reason is that the currently existing collaborations with industry appear not to offer sufficient options for students to perform really relevant internships at these companies, reducing their value to the programme. For the PhD programme it seems internship requirements are like those of the Master programme but a specific internship requirement for this programme would be helpful. The internships that are undertaken by PhD students should have a research focus, which currently seems not to be assured.

Revenue creation is an expressed goal of the University. When mentoring the students, the panel of experts would suggest to putting more emphasis on the importance of creating revenue opportunities in Nigeria by networking with suitable industrial partners already as students. While the faculty apparently is fully aware of the importance of this issue, it seemed that the students were not aware of the breadth of opportunities that industrial collaboration may offer.

While the entrepreneurial education can be very empowering, some experience within the biotech or pharmaceutical sector - for example in the framework of internships - could be a valuable addition in order to complement students' education. At least for some of the students such internships should be a feasible alternative to an academic one. In talking to the students, it was obvious that none of them mentioned an interest in industrial internships, let alone in pursuing an industrial career. It appeared that they are more interested in pursuing academic research careers. M.Sc. and PhD students should be encouraged to perform internships, and where possible even parts of the research of the PhD programme, in collaboration with the industry and at the facilities of industrial partners abroad. **[Finding 9]** This can create opportunities in obtaining additional skills which academia may not offer in the same way.

Support for industrial careers

The panel of experts got the impression that the job situation in Nigeria might not allow all students from Redeemer's University to obtain adequate employments in the country. To support students, a course in entrepreneurship is being offered by Redeemer's University. This is a valuable part of the curriculum which may help students to create opportunities for self employment in a difficult labour market for molecular biologists in Nigeria. The education of students in economics, and a strong emphasis of entrepreneurship by the University, is an approach well designed to prepare students for the challenges they may encounter in facing a very limited labour market for molecular biologists in Nigeria.

But students also may have a blind spot when it comes to their opportunities in establishing and utilizing connections to suitable industrial partners. The experts appreciate that the faculty is trying to attract industrial partners to Nigeria, and support them in opening research centres in the country. These centres could create additional job-opportunities.

The University emphasizes entrepreneurial education in order to motivate students to become active in creating their own job opportunities. It became apparent that the course may be somewhat more general than needed. No examples were mentioned that are directly applicable to the students' field of studies. Here it could be sensible to offer more real-life examples relating to the life-science industries.

The faculty members recognize the importance of expanding industrial collaboration, and are working on building them up. Therefore, much travelling is required which is expensive and hence not available to all. Perhaps online video-conference interactions with start-up companies from the life sciences could be organised in order to facilitate exchanges on options of cooperation.

These contacts could also lead to students being invited to perform internships in these companies. The faculty appear to acknowledge that an important aspect in developing business concepts and acquiring entrepreneurial expertise is first-hand experience within a company.

Additional course offers in economics could be considered, particulary as electives: for instance project management, quality assurance, finances, and similar subjects that give insight into knowledge which can be of value when pursuing an industrial career. **[Finding 10]** It is important that such "extracurricular" activities are being certified. The advantage of this approach is that students may have a better access to certain industrial fields. While for instance GxP knowledge may be part of the curriculum, it has been shown to often be of value to certify such special knowledge.

English skills

Students may be required to provide certification of their language skills when intending to attend courses or collaborations abroad. The importance of a very high English proficiency is being recognized by the faculty of molecular biology and genomics. The students have access to English tuition, and intense courses are available for those that need to improve quickly. In addition, journal clubs are organised in order to obtain or deepen the knowledge of subject-specific terminology. However, it is not clear how efficient these activities are to reach a level of English that is used in an academic context.

For all students seeking admission without proven English proficiency (i.e. no internationally recognized certification), it is advisable to perform entry exams in order to detect weaknesses in a student's English abilities. To guarantee a good command of English, it is furthermore advisable to offer exams after the students have finished the courses/activities designed to improve their language skills. It could also be helpful to strive for external certification (e.g. TOEFL or similar) in order to allow the students to provide evidence of their skills, which may be required when performing additional studies abroad (for instance if a M.Sc. graduate wishes to pursue his PhD abroad). **[Finding 11]**

Conclusion

The criteria are only partly fulfilled. The panel of experts is convinced that the concepts of the Master and the PhD programme are aiming for a high level of scientific education. There are only some shortcomings in the conceptualising which should be addressed. The most important issue is that the documentation has to be improved:

- For both programmes much more detailed information has to be handed in, including more elaborated descriptions of the intended learning outcomes (ILOs). Detailed descriptions should be available in a course handbook, more general information could be included in the already available students' handbook. The ILOs must refer to subject-specific and generic qualifications and demonstrate that they are in line with the overall targets of the relevant programme and that the intended level of the programme can be reached.
- Although the PhD programme has a strong focus on research, a timescale with key milestones need to be set up and outcomes of each activity need to be clearer explained. To align the knowledge of the students coming from different backgrounds a basic course in molecular biology and genomics should be available for those who need it. ACEGID should therefore reflect on the option to open some of the Master course modules for PhD students with little or no Molecular Biology background.

3. Learning, Teaching and Assessment of Students

Standards MA programme:
The delivery of material encourages students to take an active role in the learning process.
Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.
Assessment procedures are designed to measure the achievement of the intended learning outcomes. [ESG 1.3]

Description

Because most of the courses are offered in the Master programme and only some additional courses are taught in the PhD programme which focusses mainly on research, the following description refers mainly to the Master programme.

Learning, Teaching

The University states that the process of teaching and learning is supported by e-board facilities with interactive components and internet facilities to enhance the delivery of course content. The courses offered can be differentiated into three different kinds of courses: general college wide courses, core courses and elective courses. All courses are taken in the first two semesters of the Master programme. The courses are arranged so that the prerequisite courses are taken ahead of the other required courses. Virtual library sections are made available to students in order to give access to e-resources and round out the interlinkage between traditional and innovative course content delivery.

During the site visit staff members explained their methodology of teaching. Redeemer's University pointed out that new staff members receive feedback on their teaching by more experienced teaching staff.

The SER describes that the university has in place different levels of scholarship and student support schemes for students in special life situations. This can be for a partial scholarship, a tuition waiver, free accommodation and an offer of a teaching assistantship in order to generate funds for their daily need. The student support scheme is a scheme set up by the Redeemed Christian Church of God (RCCG) as the mission's form of support for the indigenous students at during their studies.

Assessment

Nearly all courses in the Master programme are designed for 12 weeks with 2 contact hours per week. At the end of 12 weeks each lecturer develops the corresponding examination questions according to the university rules and regulations guiding the examination questions. Each written examination is designed of five questions of which students have to answer three. It is stated that the maximum duration is 2,5 hours for each written exam. Moreover, students will get to know a whole range of examination types such as term papers, seminar and research project presentations, open book assignments, end of course examinations or oral examinations.

For the PhD programme, the course examinations will be conducted at the end of each semester. The total score for each course is made up of continuous assessment evaluation (30%) and the final examination (70%). The dissertation consists of three steps: An oral presentation, where students present the research project which will be assessed by the academic board of examiners, the dissertation assessment and the subsequent oral assessment will be carried out by an external examiner; and the oral assessment after the dissertation assessment by the external examiner. This last step will be assessed by the board of examiners including the external exam-

iner, the Head of Department and an internal examiner (academic staff member from the University, but outside the Biological Sciences department).

Experts' Evaluation

The panel of experts could experience in the discussions during the site visit and based on the provided documentation, that several teaching methods are implemented in both programmes. While theoretical lectures are carried out as a classical lecture (unidirectionally, non-interactive), students do have seminars and practical sessions in which other methods are implemented. Due to the small cohorts of students in the Master programme it is most likely that methods of teaching and learning respect and take into account the diversity of students and their needs, enabling flexible learning paths. Nevertheless, the teaching methods should be made transparent in the course handbook, with clear descriptions of what type of teaching is associated with which taught block (lectures, tutorials, interactive, practicals, library self-study etc.). From the discussions with students during the site visit it was clear that students are highly motivated and very engaged in the learning process. There seems to be a close community of students and teaching staff which contributes to a fruitful atmosphere of learning. Nevertheless, a formal training for teaching staff on new didactical methods could be beneficial and support the faculty: this is especially important towards the future and larger student cohorts (see above).

Practical sessions include the handling of different equipment and devices that are related with the course content and theory. The experts appreciate, that due to the excellent equipment that the research centre possesses, students from both programmes have access to cutting-edge and state-of-the-art technology. This aligns with the programme design and outcomes.

The programmes are full-time and do not have part-time learning pathways. Although students with disabilities are taken into consideration and there have been some cases where courses were facilitated for such students, it is unclear if this happens on an informal or a more structured level. The University seems to have a policy for students with special needs in place but this document should be provided for the panel of experts to clarify how the integration of those students with disabilities into the programme curriculum is facilitated.

Students in both programmes are challenged with different examination types, enabling a wider range of evaluation forms that reflect not only the specific skills but also more general skills that the programme provides to the students. Due to the lack of more specifically defined course descriptions (including learning outcomes, examination types or literature references), it was not possible to asses some aspects of these criteria so far (see Finding 2).

Overall, the Master programme enables students to transfer their knowledge to situations outside the university context. Methods of teaching, learning and assessment support an interlacing of theoretical and practical aspects.

Since there is a lack of formally documented processes evaluating the overall performance, it is not possible to track data including performance indicators through the different cohorts of students in both programmes. **[Finding 2]** Nevertheless, the number of students enrolled and graduating can be tracked. Long-term data regarding the pass rate of all course examinations in the study programme should be provided in the future.

The University has several Memoranda of Understandings (MoUs) with other partnered institutions that guarantee the recognition of credits obtained in foreign programmes at Redeemer's University but also guarantee the recognition of credits achieved at Redeemer's abroad. It is unclear if additional learning agreements are used when students go abroad to universities outside the partner network.

Regulations for recognition of previous periods of study, and prior learning, including the recognition of non-formal and informal learning, are not in place because there are no legal regulations for these to which the University could refer.

Conclusion

The criterion is partly fulfilled. The panel of experts has no major concerns concerning the feasibility of the programmes, assessment or recognition but there is still a lack of documentation.

4. Student Admission, Progression, Recognition and Certification

Standards MA programme:
Consistently applied, pre-defined, published regulations are in place which cover student admission, progression, recognition, and certification.
[ESG 1.4]
Standards PhD programme:
The relevant formal criteria such as admission requirements and procedures, examination conditions and the award of the degree are described and have been published.

Description

Admittance to the study programme

In the SER, the admission requirements for both programmes (Master and PhD) are described. Formal prerequisites for admittance to the Master's programme consist of modicum in Nigerian O'Levels (including English, Mathematics and Biology), a Bachelor's degree in Microbiology, Biochemistry, Molecular Biology and Genetics and other related life science disciplines such as Medicine or Veterinary Medicine from Redeemer's University or any other university approved by the University's Senate. The minimum requirement is a second-class degree, lower division. Additionally, a Higher National Diploma or a university Post Graduate Diploma with a CGPA of 3.0/5.0 may be considered for admission as well. The PhD programme admission board added to the already named prerequisites the requirement of an academic Master's degree in a relevant area with a CGPA 4.0/5.0.

In case applicants do not fulfil the minimum English requirements, an English proficiency training is provided in order to address the language deficiencies.

The selection procedure has been developed as recommended by the college of postgraduate studies. The procedure consists of an online application form, in which candidates can already state their research interest. The assessment of credentials as a formal aspect of the application procedure will be performed by the College of Postgraduate Studies and will be forwarded to the department of Biological Sciences for further assessment. A shortlist will be created in this step to filter suitable candidates for the study programmes. The candidates on the shortlist will be invited to attend an interactive session with the faculty members of the department. Hereby the candidates will get the chance to meet senior staff and discuss possible research topics. As stated by the university, the candidates will be assessed and scored by the faculty on set criteria such as appearance, ability to answer questions or level of confidence. Candidates who will get a cumulative score of 60% or above are recommended to the college of postgraduate studies for admission, which is followed by the issuing of an admission letter.

The student workload at Redeemer's University is based on the available National Universities Commission (NUC) recommendation. In the SER, it is stated that the NUC reported no negative findings regarding the Master programme accreditation process.

Experts' Evaluation

As stated in the SER, both - Master and PhD programme - have similar admission criteria for interested students. The postgraduate college advertises every year in the newspapers, radio and television, and digitally.

The application form for the PhD is appropriate and allows the candidates to differentiate themselves by describing a research project they would wish to carry out.

Candidates selected on the basis of the application forms are invited for a number of one-on-one interviews, with a number of academic staff, who score their impressions on a pre-set scale using a standardised form, as is good practice. The criteria in the interview weigh personal attributes such as ambition, character etc. heavily, above academic knowledge, achievement and skills. While it is not inappropriate to use personal attributes as part of the selection criteria, the experts state that the academic achievement/potential is undervalued. On a formal level the requirements for admission are clearly defined. Specific prerequisites relevant for an individual study programme (e.g. language skills) reflect substantive qualities needed for a successful completion of the programme and are included in the published admissions criteria. Admission requirements are shown to support the objectives of the study programme. Nevertheless, it is also essential that all students will be aware of the assessment criteria prior to the interviews. **[Finding 12]** The admission requirements have not gone through a process of re-adjustment because the programmes are relatively young. Quantitative data on the admission procedures of past cohorts are available.

After admission and before the start of term, there is an orientation programme.

Creditation and recognition

The university uses its own credit system. The number of credits is supposed to estimate the workload of the course in a semester. Overall a student must pass a total of 36 credits including 24 credit points of core courses, 6 credit points of a research project and 6 credit points of elective courses. This would appear to leave the project (duration 1 semester) badly undervalued compared to other course elements. Redeemer's University should consider the introduction of a workload system that is based on the overall workload of students (which includes lectures plus time for preparing the courses and labs plus time for exams and so on). The University must develop a transfer system that allows the alignment of the local credit system with the European Credit System (ECTS). **[Finding 13]**

Certification: currently, the MSc students are issued with a diploma and, on request, with a transcript of marks. The panel of experts recommend strongly that the transcript is provided as a matter of course and be accompanied by a Diploma Supplement that provides a brief but official description of the course, its status and its aims. This improved certification will assist potential employers, as well as admissions officers for further degrees, and enhance the future employability of the graduates. ACEGID should improve the transparency of the achievements and grades of its graduates, e.g. by offering a Diploma Supplement. **[Finding 14]**

Conclusion

The criterion is nearly fulfilled. The panel of experts has no concerns that regulations and criteria are in place to admit and monitor students during their studies. To fulfil the ESG a kind of transfer system must be introduced to align the credit system used by the University with the European Transfer System (ECTS). In addition, the achievements of the graduates have to be made more transparent.

5. Teaching Staff

Standards MA programme:
The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.
Staff involved with teaching is qualified and competent to do so.
Transparent procedures are in place for the recruitment and development of the staff. [ESG 1.5]
Standards PhD programme:
The qualification of supervisory staff (m/f) is appropriate to ensure that doctoral students are supervised at the correct academic level.
The personnel are sufficient in number to safeguard supervision arrangements on the doctoral programme.
The remit of supervisors is clear and transparent.

Description

Redeemer's University indicates that the academic staff for both programmes consists of 16 academic staff members in total, including 4 full professors, 1 associated professor, 6 Senior Lecturers, 2 Lecturers, 3 Assistant Lecturers and 1 Graduate assistant. Additionally, the Department lists 6 technical staff members to ensure the correct and safe usage of laboratories. Most of the staff members also teach in other science programmes at Redeemer's University. In the SER it is stated that the teaching hours allotted to each of the courses in the Molecular Biology and Genomics programme is as recommended by the National University Commission minimum benchmark. This is also maintained and ensured by the curriculum review committee and the academic affairs unit. The academic affairs unit draws up the teaching time table, listing the contact hours of each of the courses in the Master programme.

The University states in the SER that, since the doctoral degree programme is multidisciplinary, should any specific expertise be required and not available within the University, an appropriate expert will be sought and invited to co-supervise such student. Moreover, guest lecturers from partner universities, particularly Harvard, give classes from time to time.

The processes for staff recruitment are described in detail in the SER, and start with the placement of advertisements. Based on, the credentials of the applicants will be assessed in relation to the required qualifications by the senior academic staff of the department. The names of the shortlisted candidates will be sent to the Human Resources unit of the University in preparation for an interview. The shortlisted applicants are formally informed of the upcoming interview and other interactions with the staff recruitment committee. The committee assesses the applicants based on the submitted information.

Redeemer's University and the Department of Biological Sciences through ACEGID have a MoU with Harvard University (Cambridge, Massachusetts) that includes staff development programme that consist of a two-month Summer Molecular Biology and Genomics training programme at Harvard. As a result, several staff of the Molecular Biology and Genomics programme in the Department of Biological Sciences, Redeemer's University have received this training.

Academic staff members of the university are given financial support or permission to attend international and local conferences, workshops and seminars. The university also supports teaching staff to attend international courses, as well as postdoctoral training for junior faculty members.

According to the SER, the department appoints a senior academic staff to coordinate the postgraduate degree programme.

The administrative staff is also supported for training by attending seminars and workshops, in addition to learning specific responsibilities on the job. Similarly, the Lab manager is supported to attend laboratory management workshops in order to have good understanding of good laboratory standard practices.

Experts' Evaluation

All human resources involved in teaching within the programme are documented, including their academic and other relevant qualifications as well as quantitative involvement (teaching hours) in the programme. It is clear that they also teach in other programmes, but the numbers of overall teaching hours is lacking.

The supervisors available on the programme SER are well qualified, as documented in the SER, with at least two of them with excellent track records in molecular biology and genomics. The responsibilities of supervisors are well described in the handbook and the students said supervisors were available and very supportive. This is highly commendable. However, in terms of numbers, addition of senior and junior staff is highly recommended. The University should consider recruiting at least one senior staff and 1 or 2 postdoctoral staff to enhance supervision environment and hands-on exposure in labs. **[Finding 15]**

Procedures are in place to ensure the qualifications of part-time/additional lecturers. Lecturers are made familiar with the requirements of the programme.

Transparent recruitment procedures for teaching staff are in place. Some procedures, notably mentorships, are in place to ensure appropriate didactic qualifications of the teaching staff, but the experts recommend the inclusion of additional, formal mechanisms to train the staff members in teaching theory and practice (see above).

From interactions with students, it is clear that suitable guidance and supervisory systems are in place. However, the coordination also seems to take place on an informal level and should be formally described. At the moment, the manager of the study programmes functions also as the contact person and coordinator, which is not realistic. The responsibilities have to be shared between the senior staff members and have to be publicly available. **[Finding 16]**

Conclusion

The criterion is partly fulfilled. ACEGID has highly qualified and engaged staff members but the responsibilities have to be laid down transparently.

6. Learning Resources and Student Support

Standards MA programme:
Appropriate facilities and resources are available for learning and teaching activities.
Guidance and support is available for students to advise on achieving successful completion of their studies. [ESG 1.6]
Standards PhD programme:
There is a research environment in place which facilitates the relevant research and fosters the qualification which is necessary for a future research career inside academia or outside an academic context.
Doctoral students have access to access to an appropriate infrastructure.
Sufficient and suitable guidance and supervisory systems are in place.

Description

The study programme is financed by the World Bank African Center of Excellence grant and other international funding agencies such as the National Institute of Health/H3Africa, US embassy, Henry Jackson Foundation, etc. In addition, the Seeding Labs organisation is also supporting the programme through the donation of equipment and Laboratory consumables. Other sources of supports for the programme are student tuition fees and funding directly from the University (Redeemer's University is a fee-paying, private university).

The process of teaching and learning is supported by the University through the provision of e-board training facilities with interactive components and internet facilities to enhance the teaching exercises. This is supported by the availability of an e-board in every lecture room as well as the use of the Edu-social technology for lecturer-student interaction during and after classes. In addition, the university provides wifi internet connectivity for direct and easy access to information.

The university has a library where students have access to journals and textbooks. The library has a virtual library section for access to the e-resources. Beside journals and information sources, the library purchases text books in support of the University's courses. The subscriptions are informed by the academics in order to ensure availability of relevant journals.

Students are expected to participate in research seminar presentations, the writing of term paper on topics of interest and relevance to the programme. The students are also encouraged to participate in conferences through presentation of their ongoing research in the oral or poster session. In addition, students in the university are encouraged to serve as training assistants for undergraduate practical sessions.

According to the SER, the existing teaching and research facilities in the Department of Biological Sciences are adequate for students and staff in the Molecular Biology and Genomics programme. In addition, the World Bank has committed extra funding for the building of a new Research and Office Complex for ACEGID, which will include new research laboratories, seminar and conference rooms. The panel of experts visited the construction area.

Guidance and support

Information on the Molecular Biology and Genomics courses is publicly available to students, for example on the university website. In addition, other information is shared in the student handbook or by e-mails.

The College of Postgraduate studies and the Department organize orientation programmes for all new intakes in order to familiarize them with the mission and vision of the University. Relevant university facilities and services are also discussed during the orientation programme. The college also offers advisory services as it applies to the general postgraduate programme of the University. A departmental Postgraduate Coordinator is responsible for advising the students on departmental and academic matters as it concerns the students. This includes information on the course workload and academic calendar as well as monitoring that the lectures are carried out appropriately.

All lecturers have specific consultation times of a minimum of two hours per week where they meet with students.

Students with disability or in a special life situation can have special consultation services whenever required.

Experts' Evaluation

Course descriptions are available to the M.Sc. students, as well as timetables. However, the course documentation is lacking in detail. It contains the headline course descriptors and keywords for the course. However, this should be substantially expanded to reach international standards and support student mobility, e.g. by describing the intended learning outcomes (ILOs) (see above). All information should be bundled as syllabus, and made available to students at the start of the semester. The course syllabus must include details of assessment form and date, as well as the expected workload (in-class, preparation, course work, assessment).

Strategies are defined to ensure that course offerings are coordinated on both content and organisational levels to avoid overlap. The programme is implemented in such a way that students are able to complete their studies within the expected period of time as defined in the curriculum. However, the identity of the course coordinator should be part of the course information so that both staff and students are aware of the person of overall responsibility for the course organisation. One of the course coordinator's tasks must be to refer students with difficulties to the appropriate student support structures or mentors. Such structures must be clearly defined, e.g. in the course handbook, and publicly available (see above).

Learning Resources

Appropriate material resources (computer workplaces, laboratories, classrooms etc.) are available for the study programme as necessary to achieve the intended learning outcomes. The teaching and library space available is sufficient for the number of students on the course but laboratory space is becoming limited for the M.Sc. students during their 6-months research assignments. However, with the new research labs currently under construction, this should be remedied.

Library resources are available at a reasonable level. Textbooks on Microbiology, Parasitology, Virology, Molecular biology and Genomics are available in multiple copies. These texts are relatively basic rather than specialised on the molecular biology and genomics of pathogens, but they are still valuable and support the teaching. For up-to-date specialised information access to the scientific literature is required. The number and type of printed journals available is very limited for obvious budgetary reasons and therefore the main source for scientific reading will be online journals, of which a minority will be readable via Open Access. Due to technical problems the panel of experts could not check the availability of the online journals during their visit to the library. Therefore, the University should hand in a list/descriptions of those resources, including e-subscriptions to key journals and the procedure for obtaining articles for which no subscription is available. **[Finding 17]** A recommended reading reference list for each course should be included in the syllabus and updated regularly (see finding 1).

The equipment in laboratories and dedicated workspaces reflects current professional standards and is appropriate for the course aims. Infrastructure is probably among the strongest points of the programme. Laboratory space and state of the art equipment in molecular biology and genomics are available. The panel of experts was very impressed by the ACEGID labs.

Student Support Services

Institutionalised student advisory services including pastoral support, and on-campus accommodation are available to students. These services are offered consistently and information on these services is made available to students in an adequate way. Academic staff is also accessible and engaged with both academic questions and student welfare.

For non-native English speakers, specifically francophone ones, some pre-course English teaching is available in the form of an intensive 2-month course and information about this is advertised to French-speaking populations or population segments. However, 2 months cannot be sufficient

for beginners, especially in the context of advanced course materials and laboratory safety. The panel of experts advices that this courses should be extended to 6 months. Alternatively, a formal minimum proficiency level, by a recognised English proficiency test should be required at the start of the 2-months intensive course and at the start of the Master or Ph.D. programme in Molecular Biology and Genomics (see above).

The panel of experts is not aware of specific policy for incoming exchange students participating in parts of the courses but this has a high value in internationalisation and would be attractive given the unique perspective on genomes of neglected pathogens. The introduction of ECTS should facilitate this and in anticipation of a demand for specific, specialised modules, by incoming exchange students from partner universities.

The students are expected to find their own internships for the 6-month Master research project but support and guidance is provided as necessary.

The faculty explained during the discussions that students have opportunities for overseas student exchange, for example with Harvard University. This is also commendable.

It would be advisable to allow some doctoral student participation in teaching or research project management.

Conclusion

The criterion is partly fulfilled because a documentation of the online journals is missing and the panel of experts is therefore not able to assess the extent of availability of up-to-date scientific literature.

7. Information

Standards MA programme:
Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme. [ESG 1.7]

Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders. [ESG 1.8]

Description

The University established a directorate of academic planning and quality assurance (DAPQA) in order to analyse responses from the surveys and questionnaires. The outcome of the analysis is made available to the university management and department in order to inform quality improvement of the programme.

Experts' Evaluation

Regarding the data management for both programmes, the experts have previously stated a lack of formal mechanism that permits a follow-up of the graduates for both programmes. Nonetheless, informal elements are implemented that allow ACEGID evaluating the professional development of several alumni. The panel of experts would like to recommend that the centre will establish formal documented mechanisms that enable the assessment of this aspect. The panel of experts observe a close contact and fluid communication of the Centre with external partners, such as private sector and research institutions of the field, which allows monitoring the alignment of the programme outcomes and the requirements for successful employability of the graduates.

For further improvement, the experts would suggest the establishment of stronger links of students with the private sector (see above).

While formal requirements of the programme are clearly stated and accessible to students, such as scholarships, tuition fees, time schedules and regulations, there is a common lack of accessibility of information to different stakeholders. While the students do receive the information regarding this last element once the semester has started, the experts could not find a general description of the learning outcomes of the programme as a summary. Yet, this might be of high interest to future applicants of both programmes. The experts would encourage ACEGID to upload all relevant information about the programme, including course syllabi to the programmes´ website. **[Finding 18]** This does not only improve transparency for the community, but also makes it more accessible for students and future applicants. Overall, all this information should be provided to students before they start the semester.

One should positively mention that for both programmes the application and selection process is well defined and very clearly stated in the documents and information uploaded to the website.

The panel of experts, based on the documentation provided and during the interviews also realized that while the students do receive, on request, a the transcript of records that includes a list of mandatory and elective courses. Yet, some elements that are usually incorporated to a Diploma Supplement are missing: there is no levelling of the programme according to any framework like ISCED or EQF, there is no general description of the programs itself or higher education system in Nigeria, no information on the language of the programme, etc. In order to have a better transparency of the programme for both students and other stakeholders, the experts would encourage having a document that aligns with the European Diploma Supplement and includes all the standard information (see above).

Apart from the few above mentioned aspects, students do have access to very important information, especially regarding the regulations of the programme, its duration, and the requirements for passing and completion of the programme.

Conclusion

The criterion is partly fulfilled. Areas of improvement have been addressed in the chapters above.

V. Recommendations of the panel of experts

The panel of experts recommends

- to accredit with conditions

the Master programme and the PhD programme offered by Redeemer's University in Ede, Nigeria.

Findings:

7. The course handbook for the Master programme must be revised: intended learning outcomes (ILOs) have to be defined in much more detail. Contact hours, assessment methods, student workload and literature references have to be included. A recommended reading reference list for each course should be published and updated regularly.
8. QA processes and responsibilities must be fully documented:
    e. A chart must be handed in to show the different levels of the QA system at Redeemer's University and distinguish between central level and department level. It must be shown how the different stakeholder groups are involved in the QA system.
    f. Feedback loops have to be included to inform stakeholders about the (aggregated) outcomes of the QA processes.
    g. Formal mechanisms such as questionnaires for alumni of both programmes have to be developed which include an assessment of their professional career and refer to the programme as a whole.
    h. Performance indicators for both programmes must be included in the QA instruments.
9. Different stakeholders (including students) should be represented in the committees of the programmes.
10. A table must be developed which allows an alignment of the credit system used by the University with the European ECTS system.
11. A clear timeline of tasks for semesters 3 and 4 of the Master´s Programme has to be made available (for example a Gantt chart for each semester of the course has to be part of the course information).
12. More opportunities for M.Sc. students to carry out genuine genomics research should be provided.
13. A structured, systematic approach to teacher training on educational methods and procedures of good practice should be introduced.
14. For the PhD a timescale which key milestones need to be set up and outcomes of each activity need to be clearer explained. Moreover, a basic course in molecular biology and genomics to bring students admitted from diverse backgrounds to the same level should be implemented.
15. M.Sc. and PhD students should be encouraged to perform internships, and - where possible - even parts of the research of the PhD programme, in collaboration with the industry and at the facilities of industrial partners abroad.
16. Additional course offers in economics could be considered: for instance, project management, quality assurance, finances, etc.
17. The University should check opportunities for external certification of the English skills of its students (e.g. TOEFL or similar).
18. In the admission process students should be informed about the assessment criteria prior to the interviews.

19. Redeemer's University should introduce a workload system which is based on the overall workload of students.
20. ACEGID should improve the transparency of the achievements and grades of its graduates, e.g. by offering a Diploma Supplement.
21. The University should recruit at least one senior staff and 1 or 2 postdoctoral staff to enhance and broaden the supervisory environment and hands-on exposure in labs.
22. The responsibilities for the coordination of the programme have to be shared between the senior staff members and be made publicly available.
23. The University should hand in documents showing the e-journals available through the library.
24. ACEGID should upload all relevant information about the programme, including course syllabi to the programmes´ website.