



# **Directorate of Higher Education Reviews**

## **Programmes-within-College Reviews Report**

**B.Sc. in Biology  
College of Science  
University of Bahrain  
Kingdom of Bahrain**

**Date Reviewed: 12-16 March 2017**  
**HC097-C2-R097**

## Table of Contents

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Acronyms.....	2
The Programmes-within-College Reviews Process.....	4
1. Indicator 1: The Learning Programme.....	8
2. Indicator 2: Efficiency of the Programme.....	14
3. Indicator 3: Academic Standards of the Graduates.....	24
4. Indicator 4: Effectiveness of Quality Management and Assurance.....	33
5. Conclusion.....	40

## Acronyms

ASIIN	Akkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik - German accreditation body
BSB	B.Sc. in Biology
BQA	Education & Training Quality Authority
CILO	Course Intended Learning Outcome
DAC	Department Quality Assurance Committee
DHR	Directorate of Higher Education Reviews
GPA	Grade Point Average
HEC	Higher Education Council
MIS	Management Information System
NQF	National Qualification Framework
PAC	Professional Advisory Committee
PCAP	Postgraduate Certificate in Academic Practice
PEO	Programme Educational Objective
PILO	Programme Intended Learning Outcome
QA	Quality Assurance
QAA	College Quality Assurance and Accreditation Office
QAAC	Quality Assurance and Accreditation Centre
SAC	Student Advisory Committee
SER	Self-Evaluation Report

UCB	University College of Arts, Science and Education
UILO	University Intended Learning Outcomes
UoB	University of Bahrain

## The Programmes-within-College Reviews Process

### A. The Programmes-within-College Reviews Framework

To meet the need to have a robust external quality assurance system in the Kingdom of Bahrain, the Directorate of Higher Education Reviews (DHR) of the Education & Training Quality Authority (BQA) has developed and is implementing two external quality review processes, namely: Institutional Reviews and Programmes-within-College Reviews which together will give confidence in Bahrain's higher education system nationally, regionally and internationally.

Programmes-within-College Reviews have three main objectives:

- to provide decision-makers (in the higher education institutions, the BQA, the Higher Education Council (HEC), students and their families, prospective employers of graduates and other stakeholders) with evidence-based judgements on the quality of learning programmes
- to support the development of internal quality assurance processes with information on emerging good practices and challenges, evaluative comments and continuing improvement
- to enhance the reputation of Bahrain's higher education regionally and internationally.

The *four* indicators that are used to measure whether or not a programme meets international standards are as follows:

#### **Indicator 1: The Learning Programme**

*The programme demonstrates fitness for purpose in terms of mission, relevance, curriculum, pedagogy, intended learning outcomes and assessment.*

#### **Indicator 2: Efficiency of the Programme**

*The programme is efficient in terms of the admitted students, the use of available resources - staffing, infrastructure and student support.*

#### **Indicator 3: Academic Standards of the Graduates**

*The graduates of the programme meet academic standards compatible with equivalent programmes in Bahrain, regionally and internationally.*

#### **Indicator 4: Effectiveness of Quality Management and Assurance**

*The arrangements in place for managing the programme, including quality assurance, give confidence in the programme.*

The Review Panel (hereinafter referred to as ‘the Panel’) states in the Review Report whether the programme satisfies each Indicator. If the programme satisfies all four Indicators, the concluding statement will say that there is ‘confidence’ in the programme.

If two or three Indicators are satisfied, including Indicator 1, the programme will receive a ‘limited confidence’ judgement. If one or no Indicator is satisfied, or Indicator 1 is not satisfied, the judgement will be ‘no confidence’, as shown in Table 1 below.

**Table 1: Criteria for Judgements**

Criteria	Judgement
All four Indicators satisfied	Confidence
Two or three Indicators satisfied, including Indicator 1	Limited Confidence
One or no Indicator satisfied	No Confidence
All cases where <b>Indicator 1</b> is not satisfied	

## **B. The Programmes-within-College Reviews Process at the University of Bahrain**

A Programmes-within-College review of five programmes offered by College of Science at the University of Bahrain (UoB) was conducted by the DHR of the BQA in terms of its mandate to review the quality of higher education in Bahrain. The site visit took place on 12-16 March 2017 for five academic programmes offered by the College, these are B.Sc. in Biology, B.Sc. in Chemistry, B.Sc. in Mathematics, B.Sc. in Statistics and Operational Research and B.Sc. in Physics.

UoB was notified by the DHR/BQA on 13 October 2016 that it would be subject to a Programmes-within-College reviews of programmes offered by the College of Science with the site visit-taking place in March 2017. In preparation for the review, the College of Science at UoB conducted self-evaluation of these programmes and submitted the Self-Evaluation Reports with appendices on 25 December 2016.

The DHR constituted a panel consisting of experts in the academic field of Science and in higher education who have experience of external programme quality reviews. The Panel comprised 10 reviewers.

This Report provides an account of the review process and the findings of the Panel for the B.Sc. in Biology based on:

- (i) analysis of the Self-Evaluation Report and supporting materials submitted by the institution prior to the external peer-review visit

- (ii) analysis derived from discussions with various stakeholders (faculty members, students, graduates and employers)
- (iii) analysis based on additional documentation requested and presented to the Panel during the site visit.

It is expected that UoB will use the findings presented in this Report to strengthen its B.Sc. in Biology. The DHR recognizes that quality assurance is the responsibility of the higher education institution itself. Hence, it is the right of UoB to decide how it will address the recommendations contained in the Review Report. Nevertheless, three months after the publication of this Report, UoB is required to submit to the DHR an improvement plan in response to the recommendations.

The DHR would like to extend its thanks to UoB for the co-operative manner in which it has participated in the Programmes-within-College review process. It also wishes to express its appreciation for the open discussions held in the course of the review and the professional conduct of the faculty and administrative staff of the Department of Biology.

### **C. Overview of the College of Science:**

The College of Science, at UoB, was originally established as a part of the University College of Arts, Science and Education, which was founded by the Amiri Decree number 11 in 1978. In 1986, Amiri Decree No. (12) was issued to establish the University of Bahrain by a merger of the Gulf Polytechnic and the University College of Arts, Science and Education. In 1990, the Board of Trustees of UoB issued a decision to divide the College of Arts & Science into two separate colleges: The College of Arts and the College of Science. Currently, the College of Science under the UoB has four academic science departments: the Department of Biology, Chemistry, Mathematics, and Physics. These departments offer undergraduate programmes of study in natural sciences that lead to Bachelor of Science (B.Sc.) qualifications as well as Master of Science programmes. At the time of the site visit, the College was employing 83 faculty members, including five part-time, and 58 administrative staff. The total number of enrolled students was 1,165 students.

### **D. Overview of the B.Sc. in Biology:**

The Department of Biology in the College of Science at the University of Bahrain currently offers the four year B.Sc. in Biology programme at Sakhair campus. The programme originally started in 1978, in the University College of Arts, Science and Education, and in 1986 the programme continued under UoB; and at the time of site visit, the total number of students enrolled in the programme was 474, with the total number of graduates being 404. Currently, there are 13 full-time and four part-time

faculty members, supported by 15 administrative staff contributing to the delivery of the programme. The programme has not been subjected to professional accreditation yet. However, the College is in the process of undertaking quality accreditation for all programmes offered by the College of Science through the German accreditation body 'Akkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik' (ASIIN).

## E. Summary of Review Judgements

**Table 2: Summary of Review Judgements for the B.Sc. in Biology**

<b>Indicator</b>	<b>Judgement</b>
1: The Learning Programme	Satisfies
2: Efficiency of the Programme	Satisfies
3: Academic Standards of the Graduates	Satisfies
4: Effectiveness of Quality Management and Assurance	Satisfies
<b>Overall Judgement</b>	<b>Confidence</b>

## 1. Indicator 1: The Learning Programme

*The programme demonstrates fitness for purpose in terms of mission, relevance, curriculum, pedagogy, intended learning outcomes and assessment.*

- 1.1 There is a robust academic planning framework for the B.Sc. in Biology (BSB) programme, which is aligned to the institutional mission and strategic plan, which are provided on the institution's web site. The university's strategic plan lays out a set of actions designed to enhance quality in the academic programmes and the Academic Programme Development and Modification Policy stipulates the procedures that must be followed in the development or revision of a course or programme. The Programme Educational Objectives (PEOs) are clearly outlined in the programme specification and embed the programme aims towards the students in terms of community values, employment preparation and continuing education. The Panel acknowledges that these aims are clearly delineated as appropriate for a BSB. Moreover, these PEOs clearly support the mission and goals of the Department and the College, which include statements on providing students with skills that prepare them for future careers as well as further studies, and addressing society's problems and enhancing economic development. Furthermore, the programme's aims clearly contribute to the institutional mission of providing relevant educational experiences for its students by aiming to generate a cadre of skilled scientists who can contribute to the economic growth and development of the Kingdom of Bahrain. The Panel appreciates that the programme aims towards the students in terms of PEOs are appropriate for a B.Sc. in Biology and are aligned with the mission and strategic goals of the University and the College.
- 1.2 The BSB programme is offered as a four-year programme and over eight semesters. Graduating students complete 128 credit hours, in 42 courses, which are distributed as follows; 24 courses (70 credit hours) in the major fields of biology, 4 courses (11 credit hours) as university requirements, 12 courses (41 credit hours) as college requirement, and 2 courses (6 credit hours) of university free-electives. The workload of students is carefully assessed and calibrated with biology and other required courses ensuring an evenly balanced workload for the students, and the scaffolding of learning and the course prerequisites are diagrammatically presented and displayed on the Department's walls. During interviews, faculty members informed the Panel that the need for, and sequencing of prerequisites are regularly reviewed, and interviewed students reported that they also recommended changes on prerequisites, which were subsequently implemented by the Department. The Panel notes that the prerequisites are appropriately provided for guidance of students to ensure the completion of their programme in a logical and timely fashion. Moreover, the prerequisites are regularly reviewed and logically presented. The Panel notes that the curriculum includes experimental applications conducted in the laboratory for almost

all core courses as well as a compulsory internship course and a senior research project course, providing a balance between knowledge and practical skills and opportunities for students to practice the theories they acquire. Moreover, the curriculum is augmented with courses in general education, basic sciences, English language, core specialisation courses and electives, as well as courses that support professional and life-long learning experiences. The Panel appreciates that the curriculum provides academic progression and balances between knowledge and skills, and theory and practice, and is informed by stakeholders.

- 1.3 According to the SER, the BSB programme adheres to frameworks provided by the institution and regulated by the internal programme Quality Assurance (QA) and requisite policies. Similarly, the syllabus has been constructed and cross checked with internal syllabus design and mapping. The syllabus is presented using a common template designed by the university's Quality Assurance and Accreditation Centre (QAAC), which includes course information, prerequisite, Course Intended Learning Outcomes (CILOs) and their alignment to the Programme Intended Learning Outcomes (PILOs), textbooks and references, course description, assessment, and a weekly breakdown table that includes the topics to be covered per week, which are aligned with the teaching methods, CILOs and assessment. Moreover, programme syllabi have been compared and prepared for the initial stages of enlisting the programme on the National Qualification Framework (NQF). The Panel studied samples of course specification documents and notes that the syllabi are well designed and contain all appropriate information to satisfy the requirements of the programme to meet the current needs of biologists and employers. The course contents are wide ranging and appropriate for a B.Sc. degree in Biology, including experimental sessions in core courses, offering an extensive experience of the field to its learners. There is a list of appropriate elective courses that add depth within certain narrowly defined areas. Examination of course materials also provided confirmation of the use of current texts and references throughout different levels and the embedding of recent research findings from both faculty and external to UoB researchers in the course materials, particularly at 300 and 400 levels. This was confirmed during the site visit, where interviewed faculty informed the Panel that they regularly review the balance of course content and incorporate into senior courses, in response to stakeholder feedback, an increased component of 'hands on' training based on research findings, which is supported by evidence. The Panel appreciates that the programme syllabi meet the aims of a B.Sc. in Biology programme, is accurately documented in terms of breadth and depth, and that there are proactive efforts to inform the programme syllabi with practical skills and published research findings to meet the current needs of biologists and employers.
- 1.4 A detailed and comprehensive set of nine PILOs are specified, which covers broad knowledge in science, specific knowledge in biological science, application of theory,

ability to conduct projects, having effective communication skills related to the discipline, application of IT, ability to work in groups, being a lifelong learner and having ethical integrity. Furthermore, the PILOs are mapped to the three PEOs. The Panel notes that the PILOs are well written, measurable, in line with international expectations and are also comprehensive and properly aligned to the department's stated PEOs. The PILOs are also linked with the institution's mission which states that graduates should '...contribute directly to the economic growth and development of Bahrain, supported by leading edge teaching, technology and research with regional impact...', and to the college's mission that aspires to '...provide students with knowledge, intellectual and general skills, prepare them for future careers, graduate and professional studies, and to be active and responsible members of society...'. Moreover, the PILOs are mapped to the University Intended Learning Outcomes (UILOs), with categories such as communication, technology competence, critical thinking knowledge and skills, information literacy, responsibility and integrity, and life-long learning, and to the University Objective Domains that include categories in life-long learning, research, development of professional skills and community service. The Panel appreciates that there is a comprehensive set of PILOs that are appropriate for the level of the programme, and are appropriately aligned with the programme aims and the mission of the University and the strategic goals of the College.

- 1.5 The Panel studied course specification documents and notes that the CILOs are defined for each course within the programme. Moreover, each course of the programme, including the college and university requirements, are mapped to the PILOs. Examination of the CILOs confirmed that these are written in a measurable way, are appropriate for the course aims and their levels, and cover suitable cognitive skills that are expected from the students. Furthermore, the CILOs are comprehensively and appropriately mapped to the PILOs and the assessment, which support the achievement of the learning outcomes. During interviews, students were aware of the CILOs and noted that the course specifications are provided to them at the beginning of each semester. Moreover, the Panel learnt during faculty interviews that the Department has undertaken biennial reviews of the CILOs since 2010 and the most recent review was in 2016, which was done in preparation for enlisting the programme on the NQF. Furthermore, and to assess their achievement, the CILOs are mapped to acceptable scores set by the QAAC, using a supplied excel template, and checked manually by staff, the Chairperson, and the auditing committee. The Panel appreciates that the CILOs are appropriately defined for the programme courses and there are effectively implemented policy and procedures to support the alignment of CILO and PILO across the entire programme.
- 1.6 There is a two-month summer internship compulsory work based learning course (BIOLS 399) and students may register for the course after completing 75 credit hours.

The management, supervision and assessment of the course are guided by clear policy and procedures. According to the internship course specification, the course is not for credit and the Department awards satisfactory or unsatisfactory grades. Moreover, the course specification comprises appropriately written CILOs and their mapping to the PILOs, as well as assessment requirement. The assessment involves a written report and oral presentation by the student (30%), evaluation by the field supervisor (40%); and site visits (20%) and report evaluation (10%) by the academic supervisor and students who achieve 60% of the total mark, pass the course with a satisfactory grade. During interviews, alumni and students were very supportive of the internship as an important and relevant course. Moreover, they were aware of what is expected from them in the course and its assessment requirements. Employers and internship supervisors during verbal feedback sessions, were enthusiastic about the work integrated learning opportunity afforded to the students by the internship course. The Panel acknowledges that the work based learning component of the programme contributes to the achievement of learning and stakeholders are supportive of the course in providing a work integrated learning opportunity for students. However, during interviews, faculty indicated that they are exploring mechanisms to include the internship as a credit bearing course, as this would increase the value of the internship to the student and allow greater visibility of student practical skills and performance to faculty and employers. The Panel concurs with the Department and is of the view that while this course is compulsory and contributes to student learning there should be credit hours assigned for student participation. The Panel recommends that the College should revise the internship course to allocate credit hours to it that represent a weight appropriate to the amount of learning achieved by the students.

- 1.7 There is an institutional teaching and learning policy that includes reference to the use of multiple teaching modalities. Scrutiny of the course syllabi and materials confirms that the Department of Biology has a flexible approach to course delivery and these include a variety of teaching methods, which are clearly mapped to the CILOs. During interviews, the Panel learnt that faculty members adopt a variety of teaching and learning methods to achieve the learning outcomes of the programme and this was confirmed by a review of course materials and from student satisfaction surveys. Moreover, interviewed staff members confirmed that the majority of biology courses offered in 2017 were deployed through 'Blackboard'. Furthermore, interviewed faculty demonstrated familiarity with 'Blackboard' and other on-line tools for group work and virtual classrooms. This use of blended learning is initiated in level one courses and faculty apply Blooms Taxonomy throughout the programme, which is in alignment with the recommendations in the university's policies on teaching and learning. The Panel examined course files for level 200 and above, and noted the use of recent research findings in students' course work, accompanied by the application of critical skills and the use of self-directed learning, exemplified by the senior research project BIOLS 499. The Panel acknowledges the proactive efforts of the faculty to

embed the curriculum with practical skills and published research findings to meet the current needs of biologists and employers, as well as encouraging self-directed learning. Interviewed students and alumni enthusiastically endorsed the wide variety of teaching modalities, both theoretical and practical and pointed to the acquisition of skills and knowledge being directly applicable in the case of alumni to their current employment. The Panel appreciates the adopted range of teaching modalities being appropriately sustained throughout the programme, and the care and the regular review undertaken by the entire faculty in ensuring compliance and excellence in their programme delivery.

- 1.8 UoB has a published document on ‘Study and Examination Regulations’ which clearly outlines assessment policies and procedures that are followed by the Department. Assessment is also guided by the ‘Programme Quality Assurance and Enhancement Policy’, Student Examination and Moderation Policy and Assessment, Grading, and Examination Moderation Guidelines. There is also an anti-plagiarism policy at the university level which includes approach, prevention, detection, penalties and the process for handling plagiarism incidents. The policies and guidelines specify formative and summative assessments, as well as guidelines for marking, and these policies are available on-line. Main points on assessment are covered in the Student Handbook and details of course assessment criteria are provided to students in the course specifications, which was further confirmed through interviews with faculty, students and alumni. The final examination is allocated 40% of the assessment marks while the remaining 60% is for the course work, which could include between one and three tests depending on the type of the course. During interviews, the faculty informed the Panel that they offer feedback to students within two weeks of assessment, either orally or in writing as appropriate and this was confirmed during interviews with students and alumni. Moreover, copious written feedback was observed on the provided samples of student work, and the instructor’s feedback on each course included qualitative data on student’s engagement, student’s performance and the uptake of oral feedback during faculty office hours. Nonetheless, students raised concerns over the fairness of assessment when undertaking group projects or assignments, and indicated the lack of clear procedures in this regard. Hence, the Panel recommends that the College should develop and implement comprehensive policies and procedures for the formation and assessment of group assignment and disseminate those to staff and students.
- 1.9 In coming to its conclusion regarding The Learning Programme, the Panel notes, *with appreciation*, the following:
- The Programme Educational Objectives are appropriate for a B.Sc. in Biology and are aligned with the mission and strategic goals of the University and the College.

- The curriculum provides academic progression and balances between knowledge and skills, and theory and practice, and is informed by stakeholders.
- The programme syllabus meets the aims of a B.Sc. degree in Biology, is accurately documented in terms of breadth and depth, and there are proactive efforts to inform the programme syllabus with practical skills and published research findings to meet the current needs of biologists and employers.
- There is a comprehensive set of Programme Intended Learning Outcomes that are suitable for the level of the programme, and are appropriately aligned with the programme aims and the mission of the University and the strategic goals of the College.
- The Course Intended Learning Outcomes are appropriately defined for the programme courses, and there are effectively implemented policy and procedures to support the alignment of the Course Intended Learning Outcomes and the Programme Intended Learning Outcomes across the entire programme's courses.
- The adopted range of teaching modalities are appropriately sustained throughout the programme, and care and regular reviews are undertaken by the faculty to ensure compliance and excellence in their programme delivery.

1.10 In terms of improvement the Panel **recommends** that the College should:

- revise the internship course to allocate credit hours to it that represent a weight appropriate to the amount of learning achieved by the students
- develop and implement comprehensive policies and procedures for the formation and assessment of group assignments and disseminate those to staff and students.

#### 1.11 **Judgement**

On balance, the Panel concludes that the programme **satisfies** the Indicator on **The Learning Programme**.

## 2. Indicator 2: Efficiency of the Programme

*The programme is efficient in terms of the admitted students, the use of available resources - staffing, infrastructure and student support.*

- 2.1 The University of Bahrain has a clear admission policy which is available on the university website and in its 'Study and Examination Regulations' document. Applicants to UoB should satisfy the following requirements: a minimum Cumulative Grade Point Average (CGPA) of 70% in the secondary school certificate or its equivalent; no more than two years shall have passed since the applicant obtained his/her secondary school certificate and the applicant should attend an aptitude test as well as a personal interview. Moreover, to be admitted to the BSB programme, students should have completed the science or unified track at secondary school. Depending on the capacity of the programme, the admission priority to the BSB programme is based on a weighted average of three factors, being; the outcome of an interview (15%), the high school CGPA (70%) and the aptitude test scores (15%). During interviews, the Panel was informed that direct entry to the programme is achieved for applicants whom have scored 90% or above in their secondary school certificate and those applicants are exempted from the English language test. Applicants who did not achieve direct entry are admitted to a one-semester orientation programme. The orientation programme consists of one non-credited 9 hours per week course, namely, Orientation English Programme. Transfer students are also admitted to the programme and receive exemptions, if they get a minimum grade of (C+) in the previously taken equivalent course. Interviewed staff and students were aware of the admission procedures and regulations. The Panel acknowledges that there is a clear admission policy that is consistently implemented.
- 2.2 The Panel studied the profile of the admitted students to the programme and notes that they comply with the admission criteria. Furthermore, the number of students accepted directly into the programme, and without taking orientation, has slightly increased from 2010-2011 to 2014-2015, from 30% to over 35%. It is apparent from the SER that the number of admitted female students is progressively increasing year after year, where the percentage of female students is 86% of the total intake in 2016-2017. The Panel was informed during interview sessions that a major driver is the fact that the most secured employment of the programme graduates is being employed as science schoolteachers, which is not always preferred by male students. During interviews, academic staff, students and alumni confirmed UoB's report findings that many students enter the programme with suboptimal English language skills, which hinders their successful or timely completion of the programme. However, they noted that by 300 level the language skills of most students do improve as a result of taking the two required courses of English (English 125 and English 126) that extend the scientific English language proficiency among students. Hence, the Panel recommends

that the College, in collaboration with the University, conduct a thorough study to identify the reasons behind the low progression and retention rates, and develop a plan to mitigate the issue including a full revision of its requirements for English language competencies and the structure and content of the orientation programme.

- 2.3 The BSB programme is managed by the Chairperson of the Department of Biology who is responsible for the day-to-day running of academic and administrative issues. The job description, responsibilities and authorities of the Chairperson are clearly described in the QAAC Quality Manual and university regulations. A simplified college organizational chart outlines the hierarchy of administration and shows that the department Chairperson reports to the Dean of the College. During faculty interviews, the Panel learnt that the Chairperson is responsible for conveying individual faculty and departmental issues to the Dean. The Department Council, chaired by the department Chairperson is the authority for making recommendation and decision making for the programme. Departmental committees contribute to the governance of the Department, and there are committees for curriculum, quality assurance, timetable, strategic planning, purchasing, statistics, safety, research & seminars, senior project, internship, and promotion. From interviews with administration and academic staff and evidence provided, the Panel was able to confirm that the established hierarchy for the management of the programme is effective and faculty are involved in the academic and administrative aspects of the programme through the committees. The Panel appreciates that there are clear lines of accountability with regards to the management of the programme.
- 2.4 According to the SER, there are currently 13 full-time faculty members contributing to the delivery of the BSB programme, with 11 PhD holders at the following ranks; one Professor, one Associate Professors and nine Assistant Professors; as well as two MSc holders appointed as lecturers. Moreover, there are four part-time faculty members as well as 15 administrative staff (including technicians) with qualifications ranging from MSc to high school certificate. Based on the total number of students served by the Department (474) and the number of faculty members, the present student to faculty ratio is 36: 1. However, the departments' faculty members also contribute to the delivery of courses serviced to other programmes delivered by other departments and colleges. The Panel studied the CVs of the faculty members and notes that the BSB programme has a coherent team of faculty members with diverse academic backgrounds and expertise, which is viewed by the Panel as being a real asset underpinning the programme. Moreover, there are some faculty members who are active in their areas of research with recent publications. The Panel learnt from interviews and provided evidence that faculty member's responsibilities span around teaching, advising, research, committee work, and community services. They are team teaching general biology courses, but they also teach higher level courses within their fields of specialisation. However, the major emphasis of their duties is clearly teaching

and learning; and the teaching load of some faculty members is approaching the maximum defined by the university (15 contact hours for PhD holders and 18 for holders of a lesser degree). The Panel was informed during faculty interviews that this high teaching load is impacting the quality of teaching, research, and community service, on which a faculty members' contribution is evaluated for appraisal or promotion purposes. Moreover, the College, in the recent past, has supported faculty members' conferences and workshops' attendance. However, this has not been the case in the last three years and a few faculty members have used personal financing to undertake regional conference participation, as a result of the cut in budget allocated to conference attendance. The Panel praises the collegial spirit and enthusiasm of the department's staff and acknowledges that faculty members' academic qualifications are appropriate and exhibit the experience necessary to fulfil the position descriptions. Nonetheless, the Panel has concerns around the ability of the assistant professor faculty members to satisfy the requirements for promotion, which are centred on the ability of the College to ensure sufficient dedicated time is provided to faculty for research and community service. The Panel recommends that the College should revise the faculty workload to ensure that this workload is not excessive in order to ensure faculty effectiveness and programme viability.

- 2.5 Recruitment criteria for both faculty and administration staff are expressed in the Academic and Administrative Bylaws, which also state that the 'Department Council may form a committee to propose recruitment of faculty members'. Moreover, procedures for academic recruitment are defined and cover the recruitment of Graduate Assistants, Lecturers, Assistant Professors, Associate Professors, and Professors. From interviews and evidence provided, the Panel was able to confirm that these policies and procedures are consistently implemented in a transparent manner. Furthermore, the Panel was informed that there are certain implemented measures by UoB that support faculty retention. These include a locally competitive salary package for faculty members. The University also provides rewards and incentives that include research grants, publication rewards, paid faculty consultancy, salary increases for distinguished candidates and health insurance. Interviewed faculty members were satisfied with these measures, and evidence shows that only in rare cases staff leave the Department and these are mainly due to retirement. The Panel appreciates that there is clear recruitment policy that is consistently implemented and retention rate is high in the Department. Nonetheless, the Panel was informed during the site visit that newly recruited faculty members are informally introduced to the department's facilities and its staff by the Chairperson. Therefore, the Panel recommends that the College should implement a formal faculty induction policy and evaluate its effectiveness. The Panel learnt during interviews that students evaluation of faculty is conducted regularly but formal faculty appraisal is conducted when faculty members apply for promotion or contract renewal (see paragraph 4.9). For the purpose of contract renewal, the Department Council forwards its recommendations to the

College Council which forwards its recommendations to the University Council for final approval. The Panel was informed by faculty members that these measures so far have proved to be effective. The promotion policy for faculty members is clearly stated in the 'Regulations and Appendices of Academic Promotion at the UoB' document, which was approved by the University Council in 2012. The promotion policy covers the three main functions expected from a faculty member; teaching and learning, research and community engagement, with heavy reliance on scholarly activities and emphasis on publications in peer-reviewed journals, which in the panel's view is fair and common in most universities. On receiving a promotion application, the Chairperson completes an evaluation form which rates the candidate's professional conduct, planning of teaching, effective teaching and evaluation by students. The Department Promotion Committee evaluates the documents submitted by the candidate and the committee's recommendations are forwarded to the College and subsequently the University Council for final approval. Although there have been applications in the past that led to promotion, currently there are two senior faculty members in the Department and concerns around the ability of the remaining assistant professors in the Department to be able to satisfy the requirement for promotion are centred on the ability of the College to ensure sufficient dedicated time for research and community service to meet promotion requirements. Moreover, interviewed staff members raised their concern about the prescriptive scoring systems based on individual publications rather than team activities, reduced opportunity to undertake research due to high teaching load and absence of a graduate programme with concomitant shortage of graduate students to assist with research studies. The Panel urges the College to take measures that support the promotion of faculty members and provide them with the required time and resources to support the advancement of faculty in academic rank (as recommended in paragraph 2.4).

- 2.6 According to the SER, there is a management information system (MIS) that keeps all information relevant to students and is used by the Chairperson, advisors, staff and students. The system allows students to register, add or drop their courses, view their records and pay fees. Faculty members can view the registered students in the courses they teach and submit student grades. The system also allows the Chairperson to approve the grades submitted by the faculty members and allows academic advisors to monitor their advisees. There is also a human resources system, which is used to access staff records, process the payment of their salaries and keep attendance of administrative staff. The Chairperson has access to these records and can use the system to complete the appraisal of administrative staff. Interviewed students and faculty members, indicated their appreciation for the provision of online systems that help staff and students conduct vital online procedures. During the site visit, the Panel confirmed the provision of the MISs, which support the programme. The Panel appreciates that there are MISs that are implemented effectively for the management of staff and students' information.

- 2.7 There are policies and procedures at the institutional level to ensure the security of learners' records and accuracy of results. Moreover, the IT centre has policies and procedures in place for the security of the information that is kept on their systems electronically. During the site visit, the Panel confirmed that the Deanship of Admission and Registration is responsible for handling student records. Moreover, student assessment, such as final examination papers, are kept in the Department for two years. At the end of the semester, faculty members are provided online access to a portal for entering the grades of students who are registered in the courses they teach. The Chairperson approves the grades submitted by the faculty members and forwards them to the Dean of Admission and Registration for final approval. Applications for changing grades are initiated in the Department and require the approvals of the Dean of the College and the University Council before being executed. There are access levels with passwords in place that allow various levels of authorized access, which are enforced to be changed every 120 days. Moreover, UoB has a robust backup and disaster recovery system which is governed by policies and procedures, and the Panel confirmed their implementation during the site visit. The approved IT plan and Information Technology Policies and Procedures describe all confidentiality and security requirements. Moreover, there is a disaster recovery site that is off campus. This site holds regular backups of the system and has a standby database that can be linked to, when required. During the site visit, the Panel was able to confirm that the aforementioned policies and procedures were in place. The Panel appreciates that there are clear procedures in place for risk management, back-up and security of information that are implemented in an effective manner to support the programme.
- 2.8 During the site visit, the Panel toured the department, college and university's recourses and facilities at Sukhir Campus. The Panel notes that within the Department, faculty members have adequate individual offices, helpful for advising students. Furthermore, classrooms are of medium size that can accommodate up to 40 students and there is a lecture hall that can accommodate multi-section classes, and these are equipped with multimedia facilities. Furthermore, the Department has adequately equipped laboratories that include 12 teaching laboratories and a common computer laboratory. In addition, there are 10 research laboratories that are used by faculty members and senior project students. The Panel confirmed during the tour that health and safety rules and regulation are posted in all laboratories, which are adhered to by staff and students, and these facilities are adequately equipped. The SER states that the number of students enrolled in programmes offered by the Department has been increasing (from 129 in 2010-2011 to 474 in 2016-2017). The Panel is of the view that these classroom facilities are barely adequate at this time and larger rooms would be essential if the Department is called on to serve higher numbers of students in the future. Students also have access to an open area computer laboratory that is housed in the College of IT and in close proximity to the College of Science, which has 220 workstations with varied types of software for general use. Moreover, students have

access to Wi-Fi all around the campus and are provided with an email address, a (1 Tera Byte ) of personal hard disk space on the university server and Microsoft Office 365. Also, the e-learning centre provides 'Blackboard' as an e-learning resource for faculty members to host their courses. The Panel toured the College of IT and Science Library, which is in walking distance to the Department, and notes that there is an adequate collection of textbooks and journals. Also, computers are available for searching different electronic data bases held within the main library. Touring the facilities, the Panel was informed that there are electronic and printed resources available for the BSB programme students and faculty that support courses and research. Furthermore, many e-resources can be accessed both on and off campus by students and staff, and both library facilities are staffed with qualified personnel. Moreover, the Department provides common areas for students for out-of-class study and there are more than 150 seats for students in the specialised library. The Panel acknowledges that the library resources support the programme and are comparable with other similar universities, and that the available resource are suitable for the BSB programme. However, the Panel recommends that the College, in collaboration with the University, should expand the capacity of the classrooms and the concomitant laboratories to ensure their suitability for the growing student enrolment.

- 2.9 There are a number of tracking systems that are employed for the use of the different resources in the Department, some being manually implemented and others electronically. During the tour of the facilities, the Panel observed that all classrooms and laboratories have their timetables posted on the door. Moreover, tracking the usage of these facilities and occupancy of laboratories are mostly done manually, and the technicians are responsible for tracking the consumables in the laboratories. The e-learning Centre provides support for staff and students and generates data on the utilisation of its resources. The Centre offers 'Blackboard' that has up-to-date tracking of e-learning usage. During the site visit, the Panel was informed that the library is in the process of implementing a services assessment tool 'LibQUAL+', which is a web-based survey. Moreover, the library records the usage of its resources as well as conducts surveys and provides detailed reports on the use of library resources such as book checkouts and renewals, inter-library loan and library visitors. During the tour of the library, the Panel observed that a suggestion box is available at the library entrance. The Panel acknowledges that there are tracking systems that are employed by various entities which generate useful data but no evidence was provided that these are being used to inform decision making at a holistic and strategic level relevant to the programme delivery. Hence the Panel encourages the College to further utilise the information generated by the tracing systems to enhance its decision-making
- 2.10 According to the SER, a range of students' support is available for the programme at the department, college and university levels. This encompasses support in the laboratories and library, support for e-learning, IT support, academic advising, careers

and social counselling. During the site visit, the Panel had the opportunity to visit various entities that provide support services and to receive the views of stakeholders on the effectiveness of these services. The Deanship of Student Affairs is mandated with providing various kinds of support covering students' life to financial support where students can be exempted from tuitions fees if they qualify. The Students Services and Development Department provides all students with transportation, special services for students with disabilities, medical treatment, as well as social and psychological guidance through a dedicated social advisor who is based in the College. The Career and Counselling Office provides guidance to students for their future careers, by providing general awareness campaigns as well as individual counselling. Moreover, students and graduates receive mentoring during the process of job application and are helped in writing their resume. Furthermore, an annual Careers Day is organized on regular basis and students have the opportunity to meet potential employers and seek guidance while at the event. The e-learning centre provides guidance and support for 'Blackboard' learning management system and there is an English Language Centre to help students in their English writing. In addition, the library is staffed with qualified personnel who provide students and faculty with information and training for effective usage of the resources, such as library induction and training workshops on databases, writing scientific reports and understanding university regulations and plagiarism, and there is a room that is reserved for the visually impaired. Moreover, there is a liaison librarian who coordinates with the college's and department's information literacy programmes and collection development concerned with the programme. During interview sessions, students praised the facilities, support, and services offered by the University and its various departments, which is also reflected in the senior exit survey results. Furthermore, the Department of Biology employs seven qualified technicians and five demonstrators who provide support to faculty and students in the programme laboratories. Safety instructions along with introduction to the use of laboratory equipment is given during the first laboratory session and on an ongoing basis. Moreover, the campus network is supported by an Online Technical Support System, which can be used by staff and students to report laboratory problems. The Panel appreciates that the College and University provide a comprehensive level of support and guidance to students, which includes technical support that meets students' satisfaction. On academic advising, there is a university-wide policy, Academic Advising Regulations, where the Chairperson assigns academic advisors for each student when they enrol in the programme and students seek their advice according to the students' needs. Nonetheless, no evidence was provided on the effectiveness of the advising system. The Panel advises the College to develop a mechanism to monitor and assess the effectiveness of the academic advising provided to students.

- 2.11 According to the SER, the Department of Advice and Guidance of the Deanship of Student Affairs at UoB organises an induction day for all newly admitted students,

including students transferred from other institutions. During the induction day, students are introduced to the university's regulations and services, and these are also included in the Student Handbook which is distributed during the induction. Moreover, the Deanship of Student Affairs seeks feedback from the various stockholders, which include satisfaction surveys on the induction day for newly admitted students. Furthermore, students are introduced to the college's facilities, including the library. The induction programme also introduces students to the Department of Biology, and the Chairperson introduces them to the programme study plan, the faculty and laboratories. During the site visit, interviewed students indicated their appreciation of the activities in the induction day. The Panel appreciates that there is an induction programme conducted by both the College and the University, which introduces newly admitted students to the needs of the BSB programme and general university's regulations. Nonetheless, the Panel notes that the attendance of students in the induction day is low as indicated in the induction day report. Moreover, the Panel learnt from students who miss the induction that they are not provided with an alternative and have to rely on information provided in handbooks and the university website. The Panel recommends that the College should provide students who do not attend the induction day with an alternative provision.

- 2.12 According to the SER, all students are allocated an academic advisor upon enrolling in the programme and are required to meet their advisors at the beginning of each semester for guidance. The university website and the Student Handbook provide clear information on academic regulations and there are mechanisms in place to identify students who are at risk of academic failure. Each semester, the Deanship of Admission and Registration places students whose GPA falls below 2.0 on academic probation and are not allowed to register more than 12 credit hours. Moreover, during the site visit, the Panel confirmed how the MIS is implemented to identify at-risk students, where the system blocks the online registration option for students whose GPA falls below 2.0. The Department Chairperson provides the lists of students at risk of academic failure to the concerned advisors. During interviews, staff discussed the use of excel spreadsheets in graphical format to track student performance in courses in successive semesters and in multiple years in order to detect 'drift' in final results. To complete their registration for the semester, at-risk students have to see their academic advisors for advice on course selection and to unblock their online registration option. During interviews with academic advisors, the Panel was informed that tracking the students' progress is a collaborative effort between the Department and the Deanship of Admission and Registration. Furthermore, a range of academic and social support is provided to students under probation, in collaboration with the Deanship of Student Affairs' Counselling and Guidance Unit and the English Learning Centre. During interview sessions, students expressed their satisfaction with the academic support they receive from their academic advisors and other student services within the university. The Panel acknowledges that there are

arrangements in place to identify students at risk of academic failure, however, in light of the low retention and progression rate. Moreover, in light of the low retention and progression rate, the Panel urges the College to evaluate the effectiveness of the support provided to these students (see the recommendation under paragraph 2.2).

- 2.13 According to the SER, there are various opportunities for students to expand their experiences and knowledge through informal learning. Students participate in activities conducted by the College and the Department, such as biology bi-weekly seminars, science forums and annual international garden show, as well as in regional competitions. Moreover, the Panel learnt during the site visit that there is an extensive range of informal learning activities for students, such as, student societies and clubs, cultural and social activities, sporting events, seminars and workshops organised by various entities in the university, career day and 'Peer Tutoring' programme. Furthermore, during their work on their senior projects, and in higher level courses, students collaborate in groups and expand their organisational, presentation and communication skills. This provides students with the opportunity to engage in informal learning experiences and build students' skill-base for life-long learning. Also, these activities stimulate the students to acquire professional skills such as oral communication and the ability to work in teams. In addition, the internship programme provides students with technical knowledge and work ethics through their exposure to relevant industry. Interviewed students, expressed their satisfaction with the variety of extracurricular opportunities available for them to expand their learning, and praised the positive atmosphere, interactions and activities within the Department that enrich their experiences and expand their knowledge. The Panel appreciates the conducive environment and the multitude of opportunities available for students to support informal learning.
- 2.14 In coming to its conclusion regarding the Efficiency of the Programme, the Panel notes, *with appreciation*, the following:
- There are clear lines of accountability with regards to the management of the programme.
  - There is a clear recruitment policy that is consistently implemented and faculty retention rate is high in the Department.
  - There are Management Information Systems that are implemented effectively for the management of student and staff information.
  - There are clear procedures in place for risk management, back up and security of information that are implemented in an effective manner to support the programme.
  - The College and University provide a comprehensive level of support and guidance to students, which includes technical support that meet students' satisfaction.

- There is an induction programme conducted by both the College and the University, which introduces newly admitted students to the needs of the programme and university's general regulations.
- There is a conducive environment and multitude of opportunities available for students to support informal learning.

2.15 In terms of improvement, the Panel **recommends** that the College should:

- conduct a thorough study to identify the reasons behind the low progression and retention rates, and develop a plan to mitigate the issue including a full revision of the requirements for English language competencies and the structure and content of the orientation programme, in collaboration with the University
- revise the faculty workload to ensure that this workload is not excessive in order to ensure faculty effectiveness and programme viability
- implement a formal faculty induction policy for the programme and evaluate its effectiveness
- expand the capacity of the classrooms and the concomitant laboratories to ensure their suitability for the growing student enrolment, in collaboration with the university
- provide students who do not attend the induction day with an alternative provision

## 2.16 **Judgement**

On balance, the Panel concludes that the programme **satisfies** the Indicator on **Efficiency of the Programme**.

### 3. Indicator 3: Academic Standards of the Graduates

*The graduates of the programme meet academic standards compatible with equivalent programmes in Bahrain, regionally and internationally.*

- 3.1 There are institutional graduate attributes available to faculty and students on the UoB website and in evidence presented. As noted in paragraph 1.4, there are six UILOs that are defined at the institutional level and cover communication, technology competence, critical thinking knowledge and skills, information literacy, responsibility and integrity, and life-long learning. Moreover, the generic biology graduate attributes are embedded in the BSB programme and are listed as a set of PEOs which are mapped to the UILOs and to the PILOs. As elaborated in paragraph 3.8, graduate attributes are ensured through the achievement of CILOs for each course and their mapping to the PILOs, where the attainment of each of the CILOs is measured using a variety of assessment methods. Staff interviews confirmed that graduate attributes are ensured through programme assessments. The Panel appreciates that graduate attributes are appropriate and clearly stated for the programme, which are reflected in each course through the CILOs and ensured through appropriate assessment tools.
- 3.2 There is a formal university policy on benchmarking that broadly describes the purpose and scope of benchmarking activities at the UoB. Nonetheless, during interview sessions with faculty and senior staff, the Panel was informed that no academic external benchmarking has been formally conducted and that currently the Department uses the internal QA mechanisms, to benchmark programme structure and development. The Department has adopted the internal QAAC programme development and QA framework guidelines and NQF level descriptors, as guidelines and references to inform programme development. Nonetheless, evidence was provided to the Panel of plans to incorporate external input to the programme as a form of benchmark through accrediting the programme by an international accreditation body. The Panel is of the view, that although there are efforts to use various guidelines for curriculum development, these do not replace a formal comprehensive benchmarking process that cover the outcomes and academic standards of the programme. The Panel recommends that the College should implement formal benchmarking of all aspects of the programme with similar reference points in other programmes offered locally, regionally and internationally, and in accordance to UoB's policy on benchmarking.
- 3.3 Assessments in biology courses are designed and implemented as stipulated in the UoB Study and Examination Regulations. Moreover, and as noted in paragraph 1.8, UoB has a set of policies that define assessment and anti-plagiarism strategies. Furthermore, a policy is defined in the university regulations for the review of these

policies and each policy includes a review clause. Students are provided with relevant extracts of these policies in the Student Handbook and on the university website and the faculty have access to them as well. Moreover, course specification is distributed to students during the first lecture, which contains assessment criteria and mark distribution for the course, including a schedule of course assessments as well as plagiarism regulations. During interviews, the Panel noted that students are aware of assessment procedures and that instructors post students' marks for them to see their progress throughout the semester prior to sitting the final examination. Moreover, interviewed faculty informed the Panel that oversight is undertaken by course coordinators, where internal moderation of examinations and marks are carried out by the course coordinator in conjunction with instructors, and in exceptional circumstances with the department's Chairperson, but no external moderation of assessment is conducted. The Panel notes, from interviews and provided evidence that assessment procedures are followed in general by the Department to ensure that assessment is consistent with learning outcomes, there is consistency and fairness in assessments and students receive prompt feedback. Nonetheless, the implemented procedures are not completely in alignment with the reported UoB's moderation policy. Hence, the Panel urges the College to ensure that the existing university policy on internal and external moderation is consistently implemented (see the recommendations in paragraphs 3.5 and 3.6).

- 3.4 The Department adopts the course assessment form issued by the institution's QAAC to align assessment outcomes with CILOs and PILOs, and through this system, misalignments can be detected. As stated earlier (paragraph 1.3) the course specification includes the mapping of the CILOs with assessment tools, subject topics and teaching methods. Upon the end of the semester, the CILOs Assessment Report is used to measure the achievement of each CILO based on the percentage of students who achieved a 70% pass mark for that CILO. Also, a PILOs Assessment Report is included to evaluate the achievement of academic standards of the graduates which is based on the assessment of CILOs and their mapping to the PILOs. The Panel notes that scrutinized samples of course files indicate that the aforementioned alignment and assessment mechanisms are properly implemented. The Panel appreciates that adequate mechanisms are in place for assuring that the assessment tools are aligned with the CILOs and that there is a mechanism in place to evaluate the achievement of the CILOs.
- 3.5 Internal moderation of assessment is specified in the UoB's Study and Examination Regulations which states that the final examination questions should be moderated to ensure that all CILOs are covered as per its course specifications, and the SER states that the Department follows this policy. Moreover, the UoB's Student Examination and Moderation Policy specifies internal pre- and post-assessment moderation, and the policy states that 'for single sections the course instructor may present the

examinations in advance to one of his colleagues in the academic department to verify the examination questions, follow the best practices in the evaluation, and ensure the examination's validity'. During interviews, the Panel was informed that the Department has recently formulated a moderation committee to assess examinations but the Panel notes that evidence provided indicates that this committee is concerned with only a few of the programme courses such as BIOLS 102, 103, 171 and 250. Moreover, the Panel was informed during faculty interviews that for multi-section courses, the midterm and final examinations are set by the course coordinator in collaboration with other instructors teaching the remaining sections. In addition, marking and grading is collectively undertaken by all the involved instructors. Furthermore, senior projects are assessed by a panel of three internal examiners, including the project supervisor. The Panel acknowledges that the internal moderation of assessment for multi-section courses is conducted. Nonetheless, the Panel notes that, although institutional policy requires the implementation of pre- and post-assessment internal moderation, the implemented procedures are not completely aligned with the moderation policy and there is no overarching system for the implementation of the internal moderation of assessment. This is also raised in the SER as an area for improvement. Hence, the Panel recommends that the College should further develop its mechanisms for internal moderation of assessment to include both pre- and post-assessment moderation of all major assessment tools and implement those in a formal and consistent manner to ensure assessment rigor and contribute to the improvement of the programme.

- 3.6 The SER states that external moderation 'has not been implemented by the Department. However, in 2015 the University approved Examination moderation policy. Currently departments are doing only internal moderation'. However, the Panel notes that the UoB's Student Examination and Moderation Policy does specify external moderation, or as an alternative the programme to be scrutinized through an external review or accreditation. During interview sessions, the Panel was informed that the Department relies on the BQA and the QAAC reviews for external scrutiny of the programme. However, these are cyclic and do not provide contentious pre- and post-assessment external moderation of all assessment tools per say. Hence, the Panel recommends that the College should develop a policy and implement procedures for formal external moderation that covers all its major assessment tools and develop a mechanism to assess its effectiveness.
- 3.7 A sample of students' assessed work, representing a discipline cross section of the BSB programme courses offered between 2014 to 2016 were closely examined. These included final and midterm examinations, assignments, quizzes and senior project reports. The Panel notes that a wide variety of assessment types and strategies were employed including multiple choice, short answer, essay, laboratory and field trip reports and mini theses. In addition, there is evidence that students regularly

undertake oral presentations, which are assessed for communication skills and content. There were few instances of large group work but laboratory and field work were usually undertaken in small groups, with presentation of joint work by individuals. Consolidation of the programme is evident with students in 200, 300 and 400 level courses undertaking assessments incorporating critical thinking skills, including the need to independently source and analyse data and the production of increasingly complex reports and oral presentations, as students progress through the programme. Moreover, the provided sample of student work in the senior project course, BIOLS 499, is comparable with those of other similar programmes. The Panel also noted that there is no evidence of grade inflation, and most courses examined show a wide distribution of grades from A+ to F, with a fail grade in excess of 30% in some level 100 courses. Current students reported during interview sessions that their expectations are carefully managed, and that they receive adequate instruction on assessment tasks and are pleased with the standard of instruction and assessment, which was confirmed by interviewed alumni. The Panel appreciates that the level of students' achievement of the BSB programme is appropriate for the programme aims. Notwithstanding the above, the Panel noted that some 100 level (year 1) courses contained assessment questions in Arabic and English. During interview sessions with the programme team, the Panel was informed that this is a reflection of the Department of Biology's internal practice of simultaneously upskilling new students in language and scientific skills, particularly with students who arrive from school not being adequately equipped to undertake all their studies in English. While the Panel understands the attempt of the Department to overcome the problem of students entering the programme without attaining appropriate English language skills. The Panel is concerned that this is not in line with the fact that the programme is said to be delivered in English. The Panel recommends that the College should ensure that all assessments are conducted in English language and urges the College to ensure that students admitted to the programme attain the English language skills deemed appropriate for a programme taught in English (see recommendation in paragraph 2.2).

- 3.8 As noted in the SER, the Department uses two different systems to evaluate whether graduates meet the PILOs. Directly, through mapping of assessment to CILOs and then mapping the CILOs to the PILOs and setting a target of 70% score for achievement of PILOs, and indirectly through graduate surveys. An excel sheet is utilised to assess the achievement of CILOs, where individual assessment tools are mapped to the CILOs and a report is produced based on the number of students passing individual assessments. In addition, a PILO report is produced, based on the achievement of CILOs, to assess the level of learning outcomes' achievement for the programme. Moreover, during interviews, faculty informed the Panel that underachievement had largely been avoided through the use of the course assessment excel sheets. The Panel studied the final grade distribution for all the courses in 2015-2016 and notes that these

follow sector norms, as students' progress through the programme is an overall normal distribution of grading. Moreover, students' GPAs, for 2012-2015, follow a normal distribution where students mostly graduated with GPAs in the range 2.0 to 2.4, while in 2014-2015 majority of students (56%) graduated with GPAs ranging from 2.5 to 2.9. According to the SER, the Department also conducts indirect assessment of the PILOs through employer, alumni and senior exit surveys. Graduate and employer views expressed in the written survey were less supportive, but interviewed programme team members reported that the sample size was small which may render them inadequate for gauging the satisfaction of stakeholders with the level of graduates' achievements. Nonetheless, during interview sessions, alumni, internship supervisors and employers expressed positive views on the performance of graduates of the BSB programme. The Panel acknowledges that the level of achievement of graduates meeting the programme aims is satisfactory and that there are implemented internal processes for ensuring that the level of student achievement meets the PILOs. Nonetheless, there is a lack of a formal and systematic confirmation of the level of achievement of graduates by external independent scrutiny, as the employer and alumni surveys are not conclusive, there is no formal benchmarking process and no external moderation of assessment is in place, as noted in other parts of this Report. The Panel urges the College to develop and implement formal processes to support the confirmation of the level of achievement of graduates through independent external scrutiny.

- 3.9 Anecdotal evidence is available on statistical data, which is mainly in raw format, that indicates poor progression and graduation rates. According to the SER, the length of study for programme intake from 2008 to 2012, indicates that most graduates took more than eight semesters to complete their studies and only two students out of 35 finished within four years in that period. Moreover, in a UoB report on a university wide study conducted in 2016, it was noted that students took on average, six years to complete their programme. This was confirmed in faculty, alumni and students interviews and subsequently in data from QAAC, which indicates that in a 2016 study, graduation rates were 69%, 30%, 17%, 34%, 19%, 16%, 5% for intakes from 2006 to 2012 accordingly. During interviews with students and Students Advisory Committee (SAC), the Panel was informed that significant timetable clashes prevents the timely completion of the programme in the minimum recommended study plan of four years. Moreover, the SER contributes the dropout rate problem to unprepared intake, large number of students per section and unmotivated students, as they did not get their choice of programme. Furthermore, the panel's analysis of the presented data indicates that although admissions rates rose from 2010 to date, completion rates fell and attrition either involuntary (dismissed) or voluntary (dropped out) rose in the same period. Moreover, the Panel notes that the SER does not elaborate on the issue of the first destination of the graduates. However, data in the student Senior Exit Survey for 2013-2016 indicates that around 20% of the graduates had job offers. The Panel learnt

during alumni and employer interviews that the majority of the programme graduates are employed in government jobs such as teaching or health. The Panel notes that no evidence was provided on comparison data between the programme and others at the national, regional or international level. Moreover, there is a general lack of systematic reflection on cohort data analysis, which was confirmed during interviews with staff, and the absence of external scrutiny, noted in paragraph 3.2 and 3.8, does not provide for any meaningful comparison with other similar programmes. The Panel urges the College to implement systematic cohort analysis consistently to study the reasons for the relatively low progression, retention, and graduation rates and develop a mitigation plan as needed (see recommendation under paragraph 2.2).

- 3.10 Work-based learning is incorporated in the curriculum as a mandatory course, BIOLS 399, which is an internship of two months in a relevant workplace. There is a clear policy for the assessment of the course, as well as the procedures of providing an academic supervisor and a mentor at the work place who are assigned to each student. Students may register for the internship course after completing 75 credit hours. Details of assessment were provided and during faculty interviews the processes were outlined in full. The assessment involves a written report and oral presentation by the student (30%), evaluation by the work place mentor (40%); as well as site visits (20%) and report evaluation by the academic supervisor (10%). Studied evidence indicates that assessment tools used are detailed and are in alignment with the learning outcomes. Internship work supervisors met with the Panel during the site visit provided positive feedback on UoB's organization, guidance and instruction to supervisors, student engagement and participation but noted a mismatch between students' acquired subject related skills and specific sets of skills needed for some workplaces such as in hospital laboratory science. Alumni and current students were enthusiastic about undertaking an internship and could see direct benefits to acquiring hands on skills and experience in a work place, as well as the translation of their theoretical knowledge to practical application. During interviews, the Panel was informed by academic staff that internship placement is coordinated by a committee on the department level and arranged by the College Training Committee through the University Training Office while students may propose alternative internship locations. Exemptions are rare and faculty were unable to report an instance of a student being unable to complete the course, as students are provided the opportunity to repeat the course or extend the timeframe for completion. The Panel appreciates that the procedures for the assessment and management of the internship course are implemented to meet the CILOs and provide students with work integrated learning experience.
- 3.11 There is a compulsory senior project course, BIOLS 499, where students have to complete 60 credit hours before being able to register for this course. Appropriate CILOs are provided for the course with proper mapping to the PILOs. Course

assessment by the supervisor covers project proposal preparation (2%), practical work (28%), report preparation (25%) and oral presentation (5%). Moreover, assessment by the examining committee, comprising of two other faculty members, covers the final report (25%) and the oral presentation (15%). Students are provided with a thesis format guide that stipulates detailed clarification of the proper format of the report. According to the SER, the BIOLS 499 course is coordinated by the Senior Project Committee, within the Department of Biology, that reviews the proposed topics and coordinates the process with the students and the supervisors. During site visit interviews, the Panel noted that students and project supervisors are well aware of the senior project guidelines and of their responsibilities. Also, students and alumni were enthusiastic and supportive of this senior project course. Moreover, faculty noted that relevant research findings is included in the preparation of the senior research project, which is conducted in dedicated laboratories. Samples of students' projects examined by the Panel indicated appropriate topics and levels of student achievement. The Panel appreciates that there is a well communicated and implemented policy for the assessment and supervision of senior research project course, to equip students with research experience and consolidate practical skills with critical evaluation, written and oral communication skills.

- 3.12 The BSB programme employs two advisory bodies, the Programme Advisory Committee (PAC) whose members are from the government and the private sector, and the SAC, which consists of current students in the BSB programme. The University has a clear policy, noted in the Director Quality Manual-section 3, on the utilization of the PAC to support programmes, which clearly states the terms of reference for the committee that includes providing feedback on the professional and labour market needs of the programme. Evidence provided indicate that PAC members represent a diverse sector of industry covering government and private institutions in health, fisheries, education, economy, dairy and the environment. The Panel had the opportunity to meet some of the PAC members and noted that some members were recent appointees. Moreover, minutes of meetings indicate that members were informed about their terms of reference, however, the information was limited and did not cover the detailed terms of reference stipulated in the policy which was not provided to the members. Other PAC members stated that they were invited to join the committee two years ago, had three meetings in the past year and noted that the aims of the committee are to provide feedback to the Department of Biology on the BSB programme and assist in improving employability of the graduates and matching the skill sets with employer needs. The committee is appointed by the department's Chairperson, who acts as the chair and the secretary of PAC, as noted in the minutes on meetings. The Panel notes from interviews and evidence provided that a number of suggestions have been proposed by PAC, such as matching the programme outcomes more to the market needs and grouping courses in concentrations according to different specialisation fields, such as biomedical, environmental and food industry.

However, the Panel was informed that no feedback was provided to PAC on actions taken by the Department on PAC's suggestions for programme improvement. In addition to the PAC, the SAC members are also tasked with providing feedback to the Department of Biology on students' concerns and recommendations on various aspects of the programme and the terms of reference for this committee are stated in the QAAC's job description document. Interviewed SAC members indicated that they have been appointed through nominations from the department's Chairperson, that they received limited terms of reference and that some members were long standing (over two years) appointees. Moreover, there is evidence on SAC's meetings and that the Department acts on the committee's suggestions. The Panel appreciates that there are advisory committees representing the labour market and current students and that there is evidence to indicate that their feedback is utilised to improve the provision. Nonetheless, it is not evident how the impact of PAC's independent feedback is measured. Moreover, the Panel advises the Department to enhance the independency of PAC, expand its duties to include the full terms of reference as per institution's policies, and provide feedback to the advisory bodies on actions taken, based on their recommendation.

- 3.13 According to the SER, the Department conducts senior students, employer and alumni surveys to gauge their satisfaction with the standard of the graduate profile; and examples of these surveys being carried out were provided to the Panel. Evidence made available to the Panel indicates that these surveys appear to be sporadic and only just introduced, where a small number of employers (11) and alumni (12) filled the surveys. During interviews, graduates, employers and internship supervisors were uniformly positive about the knowledge level, academic integrity and enthusiasm of the graduates and students. Moreover, the lack of specific skills in defined areas in biomedical health were raised repeatedly, as a negative for graduates and this is reflected in the results from employer surveys which indicates 46% employer satisfaction in the health related sector, while employer satisfaction is 82% in education and 58% in the industry sector. In contrast to interview responses, survey results of alumni indicate only 45% of the alumni were satisfied with the academic programme and their abilities to achieve the required programme educational objectives, and only 52.5% of alumni rated their communication, critical thinking and technological and analytical skills as adequate and up to the standard levels. However, it is important to note the small sample size of survey respondents and the need to treat these results with caution. The Panel notes the lack of an effective and systematic approach in obtaining feedback from employers and alumni and hence urges the College to implement an effective mechanism to evaluate graduate and employer satisfaction with the standards of the graduate profile (as recommended in paragraph 4.8).

3.14 In coming to its conclusion regarding the Academic Standards of the Graduates, the Panel notes, *with appreciation*, the following:

- There are graduate attributes, which are appropriate and clearly stated for the programme, and are reflected in each course through the Course Intended Learning Outcomes and ensured through appropriate assessment tools.
- Adequate mechanisms are in place for assuring that the assessment tools are aligned with the course intended learning outcomes and that there is a mechanism in place to evaluate the achievement of these outcomes.
- The level of students' achievement of the BSB programme is appropriate for the programme aims.
- The procedures for the assessment and management of the internship course are implemented to meet the course intended learning outcomes and provide students with work integrated learning experience.
- There is a well communicated and implemented policy for the assessment and supervision of senior research project course, to equip students with research experience and consolidate practical skills with critical evaluation, written and oral communication skills.
- There are advisory committees representing the labour market and current students and there is evidence to indicate that their feedback is utilised to improve the provision.

3.15 In terms of improvement, the Panel **recommends** that the College should:

- implement formal benchmarking of all aspects of the programme with similar reference points in other programmes offered locally, regionally and internationally, and in accordance to UoB's policy on benchmarking
- further develop mechanisms for internal moderation of assessment to include both pre- and post-assessment moderation of all major assessment tools and implement those in a formal and consistent manner to ensure assessment rigor and contribute to the improvement of the programme
- develop a policy and implement procedures for formal external moderation that cover all major assessment tools, and develop a mechanism to assess its effectiveness
- ensure that all assessments are conducted in English language in line with the programme's medium of study.

### 3.16 **Judgement**

On balance, the Panel concludes that the programme **satisfies** the Indicator on **Academic Standards of the Graduates**.

## 4. Indicator 4: Effectiveness of Quality Management and Assurance

*The arrangements in place for managing the programme, including quality assurance and continuous improvement, contribute to giving confidence in the programme.*

- 4.1 Comprehensive institutional policies are established to guide the operations of the College and the programme. These include policies relating to the overall programme, such as quality assurance, assessment and moderation, and benchmarking. In addition, there are detailed policies relating to faculty and staff, such as promotion and appraisal. Other policies related to students, such as plagiarism and student conduct, are introduced to them during the induction day and are available in the Student Handbook. The Panel notes that most of these policies are relatively new, and have not yet been subject to revision. Nonetheless, these policies are sufficient for the effective management of the programme, and are available on the university and the QAAC websites, and that policy review is part of the articles specified within the policies. The Panel notes from interviews and the provided evidence that there is a university level QAAC, a College Quality Assurance and Accreditation Office (QAA) and a Department Quality Assurance Committee (DAC) that work in unison and are responsible for the consistency in the implementation of the policies across the institution, including the BSB programme. During faculty interviews, the Panel was informed that the Dean emails all policies and procedures to the Chairperson, and those that pertain the Department are emailed by the Chairperson to all faculty members. From interview session, the Panel confirmed that academic and administrative staff are well-aware of the policies and procedures relevant to their work. The Panel appreciates that the framework for effective quality assurance is well established by these policies and the overall goals of quality assurance are well laid out in these policies. Nonetheless, the Panel notes that policies listed on the university's English website are not as comprehensive as those present on the Arabic website, and the Panel advises that this lack of consistency to be reconciled.
- 4.2 The leadership hierarchy is clearly described in the SER, where the programme is led by the Chairperson who is responsible for its overall management. The Chairperson reports to the Dean of the College who in turn reports to the Vice President for academic affairs. There are numerous committees at the department level with clear mandates, and decisions of the committees are reviewed by the Department Council, which upholds the academic standards of the programme. Major departmental committees include the DAC, the Strategic Planning Committee, and the Curriculum Committee, as well as several others. Interviews and provided evidence indicate that although the Chairperson is ultimately responsible for the effective management of the Department, faculty members, through the Department Council and various committees, are involved in developing recommendations and action plans with

respect to the programme. The Panel appreciates that the entire faculty effectively serve as custodians of the academic standards in the programme, which is in line with good practice and supports effective leadership.

- 4.3 There is a formal Programme Quality Assurance and Enhancement Policy at the university level that includes wide ranging procedures on QA in addition to other policies noted earlier in this Report. Moreover, the University has an Internal Audit Office, which reports directly to the Board of Trustees, as well as the QAAC that is responsible for assisting the programme in reaching university goals. The programme has a clear committee structure, with responsibility for Quality Assurance (QA) management rested with the DAC. The work of this committee is supported by the appointment of a college QAA Office and Director, who is a member in the QAAC at the university level. The QAAC maintains an online centralised database for policies and programme information as well as it conducts online surveys to evaluate students' satisfaction and graduates' achievement. Moreover, the Department submits to the QAAC a self-evaluation report with action plans on cyclic basis. The Panel acknowledges that the committee structure within the Department and the College is appropriate for assuring the quality and the management of the programme's activities.
- 4.4 Faculty with whom the Panel met appear to have a comprehensive understanding of their role in ensuring the effectiveness of programme provision. There have been an array of potentially useful workshops and seminars. Examples include workshops on accreditation, assessment, the NQF, writing and assessing CILOs and PILOs, and the use of plagiarism-detection software. Attendance at these workshops is stipulated but not mandatory, and there is no data to demonstrate that all faculty have taken advantage of most or all of these opportunities. Moreover, the Panel notes that reportedly there has not been recent QA workshops and was informed that there is a need for QA training workshops to be conducted on regular basis and to cater for both academic and administration staff, which is noted as an area for improvement in the SER. Notwithstanding the above, the Panel established during the site visit that interviewed administrative and academic staff members are well aware of policies and procedures relevant to QA, and their roles in ensuring that these policies are rigorously followed. Hence, the Panel appreciates the staff's broad and deep understanding of the QA system.
- 4.5 The development of new programmes in the University is regulated under the terms of the 'Academic Programme and Course Development Regulation', which requires that any new course or programme is consistent with the Departmental mission and the College strategic plan. The process for curriculum development and updating includes input from perceived labour market needs as well as from internal groups, and is also subject to review and feedback from external stakeholders. The process

involves departmental, college, and university committees, and in the case of new programmes the consent of the Board of Trustees is also required. The Panel notes that the Department proposed a four-stream programme in 2015 but was not approved. Currently, work is in progress on developing a BSc. in Applied Biology with two concentrations, bio-health and environmental biology. Evidence provided indicate that, in the process of developing the programme, the Department followed the required procedures and sought internal and external stakeholders' input to inform the process. The Panel is satisfied with the prevailing 'Academic Programme and Course Development Regulations' being appropriate for the development of new programmes and the steps taken by the Department in proposing programmes. Moreover, the Panel acknowledges the department's attempts in responding constructively to stakeholders' feedback, who represent local industry.

- 4.6 According to UoB's 'Programme Quality Assurance and Enhancement Policy', a biennial programme Self Evaluation Report should be submitted to the QAAC. The report includes evaluation of students' achievement through the assessment of CILOs, PILOs and PEOs. Surveys should be conducted and analysed, and to include; alumni, employers and senior exit. Feedback should also be obtained from stakeholders, such as PAC and SAC. Furthermore, all acquired feedback are to be analysed and results be followed up by an improvement action plan. According to the submitted evidence, the Department generates an annual report, which includes information about the programme and some action plans. There are other vehicles for internal review, which include feedback from students and alumni, as well as input from SAC and PAC. During interviews, the Panel noted that a continuous evaluation for the courses and assessment process is clearly followed and is in place. Each faculty member has a role in the evaluation of their courses at the end of each semester when submitting the course portfolio with their improvement plans. Moreover, the SAC and PAC committees have provided written recommendations that were implemented by the Department. One example is the recommendation of the PAC committee to deliver more practical training within the programme which has been implemented. Several recommendations of the SAC committee have been implemented by the Department as well, such as offering the compulsory courses every semester to help students' timely completion of the programme, adding the option of laboratory assignments to augment experimental experience and the availability of past examination papers for students. Furthermore, according to the SER a number of programme improvements were implemented based on the annual internal review of the programme. The Panel appreciates that the provided evidence indicates that feedback is being generated in the programme annual review process which is used to inform programme improvement.
- 4.7 The university's 'Programme Quality Assurance and Enhancement Policy', which was approved in 2015, specifies a periodic programme review to be conducted to ensure

the validity of learning outcomes and the extent of their achievement, the effectiveness of the curriculum and to use feedback from external stakeholders in the process. During interviews, the Panel was informed that the internal annual review, which is arranged through the QAAC, feeds into the periodic review of the programme and that these reviews do not cover university-wide functions such as admission and registration, but focus on areas within the department's region of activity such as learning resources, facilities, and laboratories, and in particular the curriculum. As previously noted in paragraph 3.2, no external formal benchmarking is undertaken, but the Department has already initiated the incorporation of external accreditation by ASIIN (a German accreditation association). The Panel acknowledges that there is anecdotal evidence of feedback being solicited and included in the programme development, nonetheless, the Panel was not provided with evidence of a systematic approach towards a holistic periodic review of the programme. Therefore, the Panel recommends that the College should develop a holistic approach to periodic programme reviews and implement it consistently.

- 4.8 UoB's 'Programme Quality Assurance and Enhancement Policy' states that structured feedback should be collected from stakeholders to inform programme development. During interviews with faculty and students, the Panel was informed that paper-based student surveys are conducted every semester and for every course by the University, which covers faculty performance and general student satisfaction. Moreover, students' evaluations of teaching are anonymized prior to being reported to the Chairperson and the relevant faculty member. Though, survey results are provided to faculty as percentages, student comments are not relayed to faculty and no feedback is provided to the students on the outcome of the surveys. As noted in the SER and the provided evidence, senior exit surveys are conducted regularly. The survey covers wide ranging aspects such as registration, curriculum, facilities and overall programme experience. Moreover, employer and alumni surveys are conducted but, the low response rate to these surveys renders them virtually inconclusive, as elaborated in paragraph 3.13. The Panel notes that both the SAC and PAC committees have provided actionable recommendations that were implemented, following evaluation by the Departmental Council, as was reported earlier in paragraph 3.12. The Panel concludes that there is evidence of feedback being collected from various stakeholders and improvement plans drawn out. Yet, some of the actions that are marked as achieved by the Department have not been conclusive, such as implementing alumni and employer surveys outcomes reported earlier in paragraph 3.13. Furthermore, and as noted earlier in this Report, there is evidence of important outcomes being used to inform decisions on the programme, yet students, alumni and SAC at interview, all reported continuing significant timetable clashes, which prevented the timely completion of the degree in the minimum recommended study plan of four years. The Panel recommends that the College should further develop its system for the collection of structured comments from external stakeholders,

implement the outcomes of all stakeholders' feedback to inform decisions on programme improvement on a more holistic form, and provide feedback to stakeholders.

- 4.9 There are a number of opportunities for the professional development of faculty in areas such as teaching and QA skills as well as in areas of specialization, as evidenced by the number of relevant seminars and workshops provided. Newly graduated faculty members can participate in the Postgraduate Certificate in Academic Practice (PCAP) programme, and nine from the Department joined the PCAP programme. Also senior faculty members are encouraged to attend workshops conducted as part of the university's Continuous Professional Development programme. The Panel appreciates that numerous opportunities are provided for the professional development of faculty, including the PCAP. However, interviewed faculty members informed the Panel that opportunities for professional scholarly development are less attractive. There is a sabbatical programme, but this is available only to faculty at the rank of Associate Professor or higher, and is temporarily suspended owing to budgetary constraints. The Panel suggest that the College should enhance opportunities for sabbatical and other scholarly development activities. Furthermore, faculty are encouraged to apply for external fellowships, and one faculty member participated in the Erasmus Mundus Scholarship in UK in 2012 and another in an international visitor leadership programme in the US in 2015. In the past, faculty members have received university support to attend a conference if they were presenting a paper. However, faculty members with whom the Panel met were not certain that in the present budgetary climate, this policy could be continued. Thus, enhancing participation in international conferences and undertaking sabbatical leave is highly suggested by the Panel to enrich the professional competency of all faculty. Furthermore, as noted in Paragraph 2.5, faculty appraisal is conducted for promotion or contract renewal and professional development needs of the faculty is not linked to their appraisal. Thus, the Panel recommends that the College should conduct faculty appraisal in a regular manner and employ its outcomes to inform the professional development needs of faculty.
- 4.10 According to the SER, the Department relies on input from the PAC, employers and alumni in scoping the labour market to ensure that the programme is up-to-date. Input from PAC has been acted upon, such as introducing the internship, BIOLS 399, as a mandatory course for the programme, the proposed four stream programme in 2015 not being approved based on PAC's feedback, and PAC's suggestion for the two stream Applied Biology programme being approved. Moreover, faculty members have suggested some new courses that might reasonably be expected to be aligned with the labour market worldwide, but there has been relatively little attempt to investigate the emerging needs of the local labour market specifically, such as, but not limited to, acquiring data or reports from local government or private institutions on

the needs of the labour market. The Panel notes that although discussions with PAC and internship supervisors continually supplies current job market information to the Department, there is a lack of systematic and market wide approach in seeking feedback from stakeholders on labour market needs, which has been identified as an area for improvement in the SER. Hence, the Panel recommends that the College should conduct formal periodic market studies for scoping of the labour market needs in a more comprehensive manner, to ensure that the programme is current and meets future needs.

4.11 In coming to its conclusion regarding the Effectiveness of Quality Management and Assurance, the Panel notes, *with appreciation*, the following:

- There is a well-established framework for effective quality assurance which is supported by policies, and the overall goals of quality assurance are well laid out in these policies.
- The entire faculty effectively serve as custodians of the academic standards in the programme, which is in line with good practice and supports effective leadership.
- The staff having broad and deep understanding of the QA system.
- There is evidence which indicates that feedback is being generated in the programme annual review process and is used to inform programme improvement.
- There are numerous opportunities provided for the professional development of faculty, including the PCAP.

4.12 In terms of improvement, the Panel **recommends** that the College should:

- develop a holistic approach to periodic programme reviews and implement it consistently
- further develop systems for the collection of structured comments from external stakeholders, implement the outcomes of all stakeholders' feedback to inform decisions on programme improvement on a more holistic form, and provide feedback to stakeholders
- conduct faculty appraisal in a regular manner and employ its outcomes to inform the professional development needs of faculty
- conduct formal periodic market studies for scoping of the labour market needs in a more comprehensive manner, to insure that the programme is current and meets future needs.

#### 4.13 Judgement

On balance, the Panel concludes that the programme **satisfies** the Indicator on **Effectiveness of Quality Management and Assurance**.

## 5. Conclusion

Taking into account the institution's own self-evaluation report, the evidence gathered from the interviews and documentation made available during the site visit, the Panel draws the following conclusion in accordance with the DHR/BQA *Programmes-within-College Reviews Handbook*, 2014:

**There is confidence in the B.Sc. in Biology of College of Science offered by the University of Bahrain.**