

PROGRAMMATIC REVIEW OF THE SCHOOL OF SCIENCE & INFORMATICS 2016/2017
Phase 2: Programme Review

PROGRAMME PANEL REPORT

SCHOOL: Science & Informatics
DEPARTMENT: Biological Sciences
DATE: 28 – 29 March 2017

PROGRAMMES SUBMITTED FOR REVIEW

Major Awards

Higher Certificate in Science in Applied Biosciences [embedded exit award of the BSc in Food & Health Science; shared with BSc in Applied Biosciences & Biotechnology]
Bachelor of Science in Food and Health Science
Bachelor of Science (Honours) in Nutrition and Health Science

Non-Major Awards

n/a

PROGRAMME REVIEW PANEL MEMBERSHIP

Dr Rebecca O'Mahony, Programme Leader of the BSc (Hons) in Applied Biology with Quality Management, School of Science & Computing, Waterford Institute of Technology (Chair)
Dr Tom Hill, Senior Lecturer / Programme Director of the BSc Food & Human Nutrition, School of Agriculture, Food & Rural Development, Newcastle University, UK
Mr Christopher McSweeney, Product Quality Manager, Irish Distillers Pernod-Ricard, Midleton
Ms Eva Juhl, Institutional Review Facilitator, CIT (Registrar's Office Representative)

PROGRAMME REPRESENTATION

Programme Staff

Prof Hugh McGlynn, Head of School of Science & Informatics

Dr Brendan O'Connell, Head of Department of Biological Sciences
Dr Áine Ní Shé, Head of Department of Mathematics
Dr Donagh O'Mahony, Head of Department of Physical Sciences
Dr Máire Begley, Lecturer, Department of Biological Sciences
Dr Michael Callanan, Lecturer, Department of Biological Sciences
Prof Aidan Coffey, Senior Lecturer, Department of Biological Sciences
Mr Eddie Fitzgerald, Lecturer, Department of Biological Sciences
Dr Deirdre Gilroy, Lecturer, Department of Biological Sciences
Dr Caitriona Guinane, Lecturer, Department of Biological Sciences
Ms Richenda Kiernan, Lecturer, Department of Biological Sciences
Dr Aoife McCarthy, Programme Coordinator NHS, Department of Biological Sciences
Ms Anna Murphy, Lecturer, Department of Biological Sciences
Dr Craig Murphy, Lecturer, Department of Biological Sciences
Dr Fiona O'Halloran, Lecturer, Department of Biological Sciences
Dr Helena Stack, Lecturer, Department of Biological Sciences
Ms Hannah Lordan, Lecturer, Department of Mathematics
Dr William Doherty, Lecturer, Department of Physical Sciences
Dr William Whelan-Curtin, Lecturer, Department of Physical Sciences

Further staff present in the Department and Research Overview sessions only:

Dr Brendan O'Connell, Head of Department of Biological Sciences
Dr Karen Finn, Lecturer, Department of Biological Sciences
Dr Michael Healy, Programme Coordinator Biomedical Studies, Department of Biological Sciences
Dr Brigid Lucey, Senior Lecturer, Department of Biological Sciences
Dr Jim O'Mahony, Lecturer, Department of Biological Sciences
Dr Helen O'Shea, Lecturer, Department of Biological Sciences
Dr Rosemary Rea, Programme Coordinator PBT, Department of Biological Sciences
Prof Roy Sleator, Senior Lecturer, Department of Biological Sciences

Learner Representatives

Mr Lewis Bel-Maguire, BSc (Hons) in NHS, Stage 4
Ms Sarah Cronin, BSc (Hons) in NHS, Stage 1
Ms Ciara Degnan, BSc (Hons) in NHS, Stage 1
Ms Carolanne Gannon, BSc (Hons) in NHS, Stage 3
Ms Alexandra Holaková, BSc in FHS, Stage 3
Ms Lisa Kelliher, BSc (Hons) in NHS, Stage 2
Ms April Ledingham, H. Cert in Applied Biosciences, Stage 1
Ms Aoife Lonergan, BSc (Hons) in NHS, Stage 3
Ms Avril O'Driscoll, BSc (Hons) in NHS, Stage 2
Ms Julie Scanlon, BSc (Hons) in NHS, Stage 4
Ms Claire Walsh, BSc (Hons) in NHS, Stage 3

External Stakeholders (Graduates / Employers)

Ms Jessica Eivers (Graduate of NHS, 2016), PhD Student, CREATE, CIT
Mr Jonathan Lane, Senior Researcher, Biostime Infant Formula Technologies R&D

Ms Aoife O'Donovan (Graduate of NHS, 2016), PhD Student, Teagasc Moorepark
Mr Eddie O'Neill, Artisan Food Specialist, Teagasc Moorepark
Dr Kate O'Keeffe, Senior Serological Assistant, Department of Agriculture
Ms Margaret O'Leary, QA and HR Manager, Animal Health Laboratories Ltd., Bandon
Mr Kevin O'Regan (Graduate of NHS, 2016), Atlantia Food Clinical Trials
Ms Aimee Plante (Graduate of NHS, 2016), PhD Student, CREATE, CIT
Ms Meg Sisk (Graduate of NHS, 2015), Quality Analyst, Pepsico

A. PROGRAMME SUMMARY AND MAJOR CHANGES PROPOSED

1. HIGHER CERTIFICATE IN SCIENCE IN APPLIED BIOSCIENCES

1.1. Programme Summary

The Higher Certificate in Science in Applied Biosciences (NFQ Level 6, 120 ECTS credits) is an embedded exit award of the BSc in Food & Health Science and the BSc in Applied Biosciences & Biotechnology. The Higher Certificate enables exiting graduates to work as laboratory assistants in a life sciences laboratory.

1.2. Major Changes Now Proposed

Changes proposed are outlined in the summary of changes to the BSc.

2. BACHELOR OF SCIENCE IN FOOD & HEALTH SCIENCE

2.1. Programme Summary

The Bachelor of Science in Food & Health Science is an 180 ECTS-credit degree programme at NFQ Level 7. The programme shares its initial two stages with the BSc in Applied Biosciences & Biotechnology, with learners choosing their specialism on completion of Second Year. The Food & Health Science programme also has significant commonalities with Stages 1 – 3 of the cognate ab-initio BSc (Hons) in Nutrition & Health Science and with Stages 1 and 2 of the BSc (Hons) in Pharmaceutical Biotechnology. Graduates who achieve an award stage result of 50% or higher may transfer into Stage 4 of the Nutrition & Health Science Honours degree.

Standard entry into the programme is through the CAO. In the period under review applicant demand increased from 665 to 855 (29%), while CAO 1st preferences increased by 84%. Mean CAO entry points rose from 346 in 2011/2012 to 373 in 2015/2016, with First Year progression rates also rising from 46% to 76% (peaking at 84% in 2014/2015).

The BSc in Food & Health Science provides students with a broad scientific education with an emphasis on the basic concepts of the biological sciences, biochemistry, cell biology, immunology, microbiology and molecular biology. Knowledge of environmental science, analytical techniques, quality management and bioprocessing are also regarded as key requirements for the graduate. The development of high-level laboratory skills forms a substantial part of the programme. Stage 3, Sem. 1 includes an obligatory 16-week industry placement.

The Food & Health Science programme is designed to enable Graduates to function effectively and productively as technicians and analysts in the food, biotechnology and pharmaceutical industries, without the need for extensive further training.

Almost all (95%) of the Food & Health Science graduates currently progress to Stage 4 of the Honours degree, but there has also been industry demand for Level 7 graduates. Employment destinations for graduates have included advanced manufacturing in the food & drinks, healthcare, cosmetic, pharmaceutical and chemical industries, as well as state and local authority laboratories. In the experience of the programme team, the applied orientation of

the programme, the emphasis on the use of modern techniques and the flexibility of the graduates are features that employers have found attractive.

Learners who have successfully completed Stage 2 but who are unable to attend for Stage 3 may draw on the embedded HC in Science in Applied Biosciences.

2.2. Major Changes Now Proposed

Changes to the BSc in Food & Health Science have been made to address employer, student and graduate feedback, taking into account the QQI Award Standards for Science. The programme team also proposes to remove or replace some modules which are deemed surplus to requirements at this point, either due to significant overlaps with other modules (ENVI6001, Introduction to Environmental Studies, Sem. 3 M) or due to insufficient demand or fitness for purpose (CHEM6010, Biological Chemistry 3 and BIOT6004, Introductory Forensic Science, both Sem. 3 E; BIOT6010, BioComputing, Sem. 4 E). No major structural changes to the programme are proposed during this programmatic review.

In Stage 1, it is proposed to replace the existing generic Mathematics modules MATH6000 and MATH6002 with two new Maths modules tailored to the needs of Biological Sciences students which provide more statistics content and scaled-back calculus.

Stage 2 changes are intended to allow students to make an informed decision on their award stage specialism (Food & Health / Biotechnology). To this end, a new mandatory Introduction to Pharmacology module has been included in Sem. 3 in lieu of the first Environmental Studies module, which introduces key areas within the Stage 3 Biotechnology stream. The content and title of the Sem. 4 bioprocessing module BIOT6007 (proposed new title “Upstream Bioprocessing”) have been revised to create stronger links with the follow-on downstream module in Stage 4 of the BSc (Hons) in Nutrition & Health Science. A new Computational Biology module, which will provide less of the basic IT literacy training now delivered in secondary schools, and instead cover more specialised biostatistics and bioinformatics topics, has been included as a Sem. 3 Elective.

One uncommented change which deserves mention is the change of status of Sem. 4 module BIOL7018, Nutritional Analysis, from mandatory to elective status.

Stage 3 changes are mainly intended to strengthen the learner’s specialist knowledge and skills in the areas of food production and quality, while minimising reduplication. Changes encompass replacing Sem. 5 module BIOM8001, Applied Separation Technology, with the more food-focused module Principles of Food Processing, as well as replacing modules BIOL7024, Health Products Regulation, Sem. 5, and BIOT7004, Quality Management Systems, Sem. 6, with a single new Sem. 6 Food Quality Management module which focuses on quality issues and regulatory systems specifically tailored to food science and nutrition. The space freed up in Sem. 5 will be filled with a new module in Food and Molecular Biotechnology, in response to previously identified deficiencies in the programme in these areas for learners who do not progress to the Nutrition & Health Science Honours degree.

3. BACHELOR OF SCIENCE (HONOURS) IN NUTRITION & HEALTH SCIENCE

3.1. Programme Summary

The Bachelor of Science (Honours) in Nutrition & Health Science is an 240 ECTS-credit degree programme at NFQ Level 8. The programme, which commenced in September 2010 now recruits, on average, 60 students annually to the Department of Biological Sciences. Graduates from this programme gain employment in the food and healthcare industries in areas such as quality, production, research and development.

Since September 2015, the initial two programme stages were aligned with those of the other two single award Honours degrees offered by the Department, the BSc (Honours) in Pharmaceutical Biotechnology and the BSc (Honours) in Herbal Science, to provide a shared Biological Sciences (Honours) Common Entry platform. As outlined above, Stages 1 – 3 of the Honours degree also have strong commonalities with the two related Level 7 degrees.

The common Stages 1 and 2 introduce essential foundation knowledge in areas of biology, chemistry, physics and mathematics. For the learners on the Nutrition & Health Science programme specifically, they also introduce the concepts related to food and nutrition, health and well-being, as well as basic analytical skills related to microbiology, biochemistry and nutritional analysis. The third and fourth year of the Nutrition & Health Science degree introduces specialised subjects relating to nutrition and health, food biotechnology, quality management and production processes. As in the Level 7 programme, Stage 3 Sem. 1 includes a mandatory 15-credit work placement module which requires the learner to undertake a placement of at least 16 weeks with a national industry partner or at one of a number of international partner organisations or institutes. Stage 4 includes a final year project distributed over two semesters; this can be lab-based, non lab-based or clinical.

Standard entry to the BSc (Honours) in Nutrition & Health Science is through the CAO.

The number of CAO applications and 1st to 3rd preferences remained relatively stable throughout the review period, averaging 713 applicants and 231 1st to 3rd preferences annually. By contrast, overall enrolments showed a growth of 74%, from 128 in 2011/2012 to 223 in 2015/2016. The increase was predominantly in Stages 3 and 4, reflecting both an increased intake and significant improvements in retention. Department senior staff noted that the increased number of Stage 3 and 4 students was placing a considerable resource burden on the Department in terms of the placement of students in industry and the delivery of final year research projects, with further increases a possibility in the near future.

The Nutrition & Health Science programme aims to produce graduates with an in-depth knowledge of how food and nutrition impacts on health and well-being, supported by the appropriate technical and problem-solving skills. The programme is designed to meet the need for technically competent scientists who are able to work in the food, nutraceutical and healthcare industries as laboratory analysts, R+D scientists and in areas of production and quality. Graduates can fulfil technical, supervisory and management roles and are also eligible to pursue postgraduate studies in related areas such as dietetics, food biotechnology, sports science and food safety.

3.2. Major Changes Now Proposed

The most noteworthy changes to the BSc (Honours) in Food & Health Science consist of significant increases in Nutrition- and in Health Science-related content in response to feedback from students, graduates and employers. Overall the changes also aim to align the programme with the competence requirements of an Associate Nutritionist of the Association for Nutrition.

Changes were effected either through replacement of existing modules with new more strongly specialised modules, or through revision/amplification of specialist content relevant to nutrition and health science in existing modules. Some changes also serve to remove overlap, creating space for addition of new specialist material. As per the Ordinary Bachelor, no major structural changes are proposed during this review.

Stage 1 changes concern the replacement of the two Mathematics modules, as outlined above for the Ordinary Degree.

The new following modules have been introduced in Stages 2 – 4: Mammalian Biotechnology (Sem. 3 M), Computational Biology (Sem. 3 E), Food & Culinary Science (Sem. 4 E), Nutrition Communication (Sem. 5 M), Principles of Food Processing (Sem. 5 E), Food Quality Management (Sem. 6 M), Food Regulation & Compliance (Sem. 7 M), Bioinformatics & Biotechniques (Sem. 7 M), Advanced Food Processing (Sem. 7 M), Nutritional Epidemiology (Sem. 7 M), Performance Nutrition (Sem. 7 E), and The Future of Food & Nutrition (Sem. 8 M). Significantly revised modules include Biosciences Literature Review (Sem. 7 M; new module written due to the extent of the changes in comparison to INTR8016 Project – Research Phase) and BIOL8001 Clinical Nutrition (Sem. 8 M).

It should be noted that some of the changes made have had the effect of reducing cognate elective choice from two to one in Sem. 3 and 5. In practice this means that, more than in the approved schedule, the proposed programme includes three semesters where – between learner interest and operational issues which inhibit widespread use of Free Choice – the cognate elective takes on quasi-mandatory status. The Department confirmed that in semesters where only one cognate elective was offered, this was pretty universally selected by the learners. This factually leaves Semester 4 as the only programme semester which provides learners with real choice.

B. PANEL FINDINGS AND RECOMMENDATIONS

1. OVERALL RECOMMENDATION TO ACADEMIC COUNCIL ON REVALIDATION

Contingent upon confirmation of the successful completion of the internal programme and module moderation process, the Panel **recommends to Academic Council that the listed programmes be revalidated** for five years or until the next Programmatic Review, whichever is sooner, with effect from September 2017.

No Panel conditions are attached to this recommendation.

2. GENERAL

2.1 Engagement with Programmatic Review

Commendation: The Panel would like to thank the programme staff, students and stakeholders whom they met for their cordial reception and the very engaged and engaging discussions during the meetings. The enthusiasm of the programme team for both delivering high quality programmes and providing their students with the best possible learning experience and professional skills set was obvious to the Panel and is greatly **commended**.

2.2 Quality of the Programme Documentation

Commendation: Although some of the documentation was only made available a few days prior to the review session, the Panel would like to **commend** the overall quality of the documentation presented for review. In particular, the Panel found the presentation of student enrolment and performance data and the section on the methodology employed by the programme board to prepare for programmatic review in the programme submission to be very detailed and informative.

2.3 Identification of New Modules in the Programme Documentation

The key changes proposed and the rationale for these were clearly outlined and well explained in the programme submission.

Recommendation: For purposes of future reviews, the Panel would like to **recommend** however that new modules might be identified more clearly in the documentation, particularly the section on proposed programme changes in the submission.

2.4 PR Preparation – Graduate and Industry Surveys

Commendation: The Panel **commends** the programme board for the graduate and industry surveys carried out in connection with programmatic review and the detailed presentation of the survey results in the programme submission. The data thus gathered will remain a source of rich information for the future development of the programmes if and when required.

2.5 Alignment of the Methodologies for Teaching, Learning and Assessment

Recommendation: Section 7 of the programme submission mentions new assessment modes, but details here are a little limited. Some examples at least of how teaching & learning aligns with assessment **would have been useful** here, in the format 'learning outcome – teaching method – assessment method', and perhaps reference should have been made to the assessment matrices.

2.6 Staff-Student Engagement

Commendation: The Panel notes the specific student engagement strategies which were clearly outlined early within the documentation, including for example the Good Start programme, PALS and Get Connected events. The Panel also notes that the documentation provides clear evidence that staff members are very active and innovative in their approach to providing the relevant support (academic and social engagement) to new and existing students. This was further confirmed during staff and panel discussions whereby there was a strong sense of commitment by staff to promoting student engagement. The Panel would like to **commend** this obvious commitment to the students' welfare and academic progress.

2.7 Assessment Schemata in Programme Descriptors

Recommendation: To assist future programme reviews, the Panel **suggests** that the Institute might consider incorporating an overall programme assessment schema / matrix into the programme schedule. This would greatly assist reviewers in getting an overall picture of module/credit assessment weightings across the programme

3. ENTRANT AND GRADUATE PROFILE, AWARD AND PROFESSIONAL ENVIRONMENT

3.1 Graduate Competences

Commendation: The Panel was very pleased with the overall quality of the graduates who exit at both award stages (Level 7 & 8). The high quality of graduates in relation to the practical competency skills developed, as endorsed by the employers present at the review, was noted and recognised by the Panel.

3.2 Programme Learning Outcomes – *BSc in Food & Health Science*

Recommendation: The Panel agreed that the POs of the BSc in Food & Health Science require some updating, and **recommends** that the programme team address this as soon as feasible.

3.3 Programme Learning Outcomes – *BSc (Hons) in Nutrition & Health Science*

Recommendation: In relation to the BSc (Hons) in Nutrition & Health Science an explicit mention of Nutrition **should be** embedded in at least one of the POs of the proposed new programme. Furthermore, the Panel **recommends** that the POs of the proposed new Honours programme should be more obviously aligned to the NFQ level of the programme.

3.4 Accreditation – BSc (Hons) in Nutrition & Health Science

Recommendation: The Panel **strongly recommends** that the programme board should seek accreditation from the UK-based Association for Nutrition (AFN) in relation to the proposed Level 8 programme. Initially, this should entail undertaking a mapping exercise of the relevant course modules against the AFN competencies document. The outcome of this exercise would identify the areas of the programme (e.g. the structure, titling and content of the programme and individual modules) which would need a review prior to an application to AFN. (See 5.1 under Programme Structure below for a related recommendation.)

Recommendation: Alternatively, if the programme board should not wish to pursue accreditation, the Panel **strongly recommends** to the board to remove the word “Nutrition” from the title of the proposed Level 8 programme to clearly signal to potential entrants that the nutritional content is not the most significant element in the programme as proposed.

3.5 AFN Accreditation and Staff Qualifications

Recommendation: Following on from 3.4 above, the Panel notes that to obtain accreditation with the AFN, applicant institutions must have two fully registered nutritionists teaching on the programme. The Panel heard that currently the course leader has associate registration status but will progress to full registration in the next 12 months as a matter of course.

The Panel **recommends** that the School would need to be mindful of the implications of this AFN requirement and the potentially significant increases in Nutrition content for the staffing strategy of the Honours degree programme going forward. In the interim, the use of appropriately qualified guest lecturers to cover additional Nutrition content could be explored.

3.6 Staff CPD

Recommendation: The Panel feels that the section on the continuous professional development of staff within both programme submissions was a little bit too concise. It may be **worthwhile** for the School to include more information regarding staff training and upskilling in the programme documentation in future. Examples of the types of CPD training which staff members have participated in and completed might, amongst others, provide better insight into the willingness of programme staff to explore new teaching practices.

4. PROGRAMME OPERATION AND PERFORMANCE

4.1 Increases in Demand and Progression Rates

Finding: Programme performance statistics for the period between 2011/12 and 2015/16 would seem to confirm the continuing attractiveness of the CIT Food and Nutrition degrees to potential applicants and the success of the School’s student engagement and retention initiatives. While Department staff were pleased about this, they did acknowledge that the growth in Stage 3 and 4 enrolments resulting from the combined improvements in entrant numbers and retention & progression rates is beginning to put considerable strain on the organisation of work placement and the supervision and moderation of final year projects.

Further increases in these stages are expected in the coming two years, and the Department is currently considering measures to deal with this. The Panel notes this, but cautions that maintenance of quality and standards need to be a core concern. (With regard to retention, see also Finding 5.2).

4.2 Student Guidance (Student Feedback)

Finding: Students in general felt that they would like to receive a little more guidance at the beginning of a new module. In particular, they felt that the overall indicative content and what is expected of them should be communicated more clearly. The Panel noted this comment.

4.3 Placement Students

Commendation: Related to Commendation 3.1, employers were very happy with the overall quality of the students who undertake a work placement.

4.4 Placement & Project

The Panel agreed that the documentation to support the implementation and roll-out of work placement was of a high standard. The Panel members are very much aware of the pressures that the increasing student numbers put on the work placement coordinators, both in terms of sourcing a sufficient number of suitable placements and of providing ongoing placement support.

Student feedback obtained during the panel sessions indicated that some students would prefer dry lab-based options over wet-lab placements, but that the current process for assigning placements does not appear to have the facility to take these learner preferences into account.

Recommendation: As far as is feasible within the complement of placement opportunities in a given year, the Panel **recommends** that students should be enabled to select between lab-based and desk-based projects. (This will also entail determination of a fair process for assigning places where the number of available projects of a particular type falls short of demand.) In addition, communication between staff and students in relation to students' expectation of work placement **should** be improved, and the nature of the available placements and the limitations on placement choice needs to be explicitly and clearly set out to the students.

4.5 Physics Tutorials (Student Feedback)

Recommendation: First Year students felt they would benefit from accessing any physics tutorials that might be running. As far as feasible, the Panel **recommends** that the Department should actively facilitate students in obtaining additional physics support.

4.6 Frequency of Programme Board Meetings

The Panel heard that only one formal programme board meeting for the Food and Nutrition programmes currently takes place in an academic year. As a consequence, some board decisions which cannot wait until the next semester have to be taken 'offline'. Not least, this

puts a considerable onus on the programme coordinator with whom it rests to contact and follow up with the individual members, a task which can only grow more onerous with rising numbers. It also means that a formal record of certain decisions may not be available should it be looked for later.

Recommendation: The Panel **recommends** that at least two formal programme board meetings should be held per academic year, with a *minimum of one per semester*. Amongst others, this would better enable the board would to capture and act on staff and student feedback on operational issues during the semester in which these occur. The board could also consider including innovative teaching & assessment practices as an agenda item during these meetings, to formally encourage the development of a strong community of practice.

5. PROPOSED PROGRAMME SPECIFICATION (INCL. DELIVERY AND ASSESSMENT)

5.1 Science Content (Student Feedback)

Finding: All current students met by the Panel were in agreement that the science currently delivered on the programmes is very relevant and is important to them as scientists, though some students did feel at times that there was a lot of repetition between modules.

5.2 Nutrition Content – *BSc (Hons) in Nutrition & Health Science* (Student Feedback)

Finding: Irrespective of stage, the student representatives whom the Panel met stated that the majority of current students on the *BSc (Hons) in Nutrition & Health Science* have the perception that the programme will provide a clear pathway to Dietetics. Consequently, the students generally expect more Nutrition-based modules from Stage 1 onwards than are included in the existing programme. Some students felt they had not been advised sufficiently well with regard to the nature of the programme. The Panel also heard that disappointment about the lack of Nutrition content in Stage 1 had caused some learners to leave the programme early on. By contrast, other students noted that they had ‘done their homework’ on the programme prior to entry and appreciated the good scientific knowledge and lab skills acquired.

The Panel notes that the increase in Nutrition content in the programme specification as now proposed should go a long way towards addressing the points raised, and has made some additional related recommendations elsewhere in this report (see especially 3.4, 5.3 and 6.3).

5.3 AFN Accreditation and Programme Structure – *BSc (Hons) in Nutrition & Health Science*

5.3.1 Recommendation: As recommended in 3.4 above, should the programme board decide to seek AFN accreditation for the Honours degree in Nutrition & Health Science the board must ensure that at least 50% of the modules contain the relevant content set out in the AFN competency document. Moving towards accreditation would likely also imply changes to some module titles.

5.3.2 **Recommendation:** Should the programme board embark on the journey towards AFN accreditation and conduct the required changes to module content and titles, the programme board should be cognisant of the void it may create in preparing graduates of the degree to be suitable for the food science and food technology sectors.

5.4 Assessment

The Panel reviewed the overall programme assessment schedules and the assessment load, types and level of the modules. In this, the Panel found the assessment matrices provided for both the Level 7 and 8 programmes to be helpful.

5.4.1 **Recommendation:** The Panel **recommends** that more varied assessment formats should be designed and implemented to cater for the variety of different learner styles. There is currently an overwhelming emphasis on lab report writing, MCQs and SAQs, even at the more advanced programme stages. More innovative assessment practices should be explored which would better reflect and assess the variety and progression of skills and competences built up by the programmes.

As an example, the Panel suggested that the team might consider introducing 'scientific briefing papers' which could be implemented at Stage 4 to assess the ability for critical analysis and understanding of the relevant scientific literature within a set of topics. Modules such as *Food Quality Management* (new module, Intermediate, 5 credits) might also benefit from the introduction of concept maps, mind-maps and instructional narrative for such mapping assignments.

Modules in the later programme stages which in the Panel's view would particularly benefit from an expansion of the range of assessments as per the above include: CHEM7002, *Food & Healthcare Chemistry*; CHEM7003 *Food Toxicology*; *Food Quality Management* (new module, Intermediate, 5 credits); *Food Regulation and Compliance* (new Advanced module, 5 credits); BIOL8001 *Clinical Nutrition*; *The Future of Food and Nutrition* (new Intermediate module, 5 credits); and FOOD7006 *Food Entrepreneurship*.

5.4.2 **Recommendation:** In addition, the Panel **recommends** that richer assessment descriptions should be documented in the Assessment Description section of the modules, as the descriptions of a many module assessments are currently 'bare bones'.

5.5 Statement on Restriction of Access to Pathogenic Organisms

Recommendation: While the Panel is convinced from the discussions with the programme team that students on the programmes do not have access to pathogens, the Panel **recommends** that explicit reference to the fact that undergraduates only work with non-pathogenic organisms should be made in the programme literature and future programme review documentation as appropriate.

5.6 Documentation of Course Delivery Methodologies

The Panel notes that the meetings with programme staff gave a far clearer sense of the varied nature of the teaching, learning and assessment practices employed by the programme team than the programme submission did. The relevant section of the programme document was vague and provided limited detail.

Recommendation: For purposes of future programme reviews, the Panel **recommends** that the programme team should give more and more detailed examples of teaching, learning and assessment practices and innovation in the relevant sections of the programme document. In particular, evidence of continuous, formative assessment should be included.

5.7 Elective Choice on BSc (Hons) in Nutrition & Health Science

Finding: As noted above, some of the changes made to the Honours degree have had the effect of reducing cognate elective choice from two to one in Sem. 3 and 5. From operational experience in the period under review, the Department confirmed that in any semesters where only one cognate elective was offered, this had been almost universally selected by the learners. In practice the proposed reductions in the number of cognate electives therefore mean that, more than in the approved schedule, the proposed programme now includes three semesters where – between genuine learner interest and operational issues which inhibit more widespread use of Free Choice – the cognate elective takes on quasi-mandatory status. This factually leaves Semester 4 as the only semester in the proposed programme which provides learners with real choice.

The Panel notes this, but suggests that, as far as resources and the requirements of a possible move towards accreditation allow, introduction of additional suitable electives might be considered by the Department over time, amongst others to support learners in developing sub-specialisms within their field.

6. MODULES

This section presents the findings and recommendations from an indicative review of modules carried out by the members of the Peer Review Panel. The Panel notes that a comprehensive survey of module specifications could not be carried out in the context of this review.

Therefore, a recommendation of the Panel to revalidate the programme(s) under review is contingent on the successful completion of the subsequent internal programme and module moderation process carried out by, or on behalf of, the CIT Registrar's Office.

6.1 ALL MODULES: Module Learning Outcomes

The Panel reviewed learning outcomes from the majority of the modules associated with the Level 7 and 8 programmes in accordance with Bloom's Taxonomy and found that some module learning outcomes may not be sufficiently well aligned to the module level (too complex resp. demanding in some Fundamental level modules; or more frequently too basic in some Intermediate or Advanced modules), and the range of active verbs selected is somewhat limited.

Intermediate and Advanced modules where some or all of the LOs, and the choice of verb in particular, may suggest a lower level of achievable learning than what is intended include: *Food & Molecular Biotechnology* (new Intermediate module, 5 credits); ENVI7001 *Environmental Sc & Ind Hygiene*; *Food Regulation and Compliance* (new Advanced module, 5 credits); *Advanced Food Processing* (new Advanced module, 5 credits); *Nutritional Epidemiology* (new Intermediate module, 5 credits); *Bioinformatics & Biotechniques* (new Advanced module, 5 credits); *Functional Foods & Health* (new Advanced module, 5 credits); and BIOL8001 *Clinical Nutrition*; *The Future of Food & Nutrition* (new Intermediate module, 5 credits).

Recommendation: The Panel **recommends** that the module learning outcomes for all modules should be reviewed, if possible in the context of finalising module moderation, to ensure that they are appropriately aligned to the module level. Furthermore, the Panel **recommends** that the range of verbs should be extended to ensure the extent of lower and higher order thinking to be acquired is appropriately captured in the LOs as appropriate to the module level.

6.2 New Modules in Stages 3 and 4 – Link to Recent Research

The Panel **recommends** that for new modules coming on stream in Stages 3 and 4, due consideration be given to making sure that these modules are research-led and based on recent research within the discipline.

6.3 Professional Development Module

Recommendation: Feedback captured from students and in particular from employers during this review indicated a demand for embedding more scientific writing skills within the programmes, as employers noted a skills gap in this area. While some of this learning is already covered in different modules, the Panel **recommends** that the programme teams might consider strengthening the development of scientific writing and related professional skills by designing a dedicated academic and professional skills module that specifically incorporates scientific writing skills, plagiarism and use of Turnitin, referencing, statistical and computer packages (Word, Excel, etc.). If feasible, this should be included in the early stages of the proposed programmes so as to maximise opportunities for improvement. Such a module may have appeal to other programmes within the School as well, making delivery more efficient.

6.4 Nutrition-Related Modules

The Panel welcomed the proposals to expand the range of Nutrition modules within the programmes but particularly in *Nutrition & Health Science*. Clearly, this will go a long way in reaching the required level of nutrition content for professional accreditation with AFN.

Recommendations: The Panel noted the potential for overlap in Nutrition content across modules in light of expanding the number of modules. To address this issue, the Panel **recommends** that the programme team undertake an AFN competencies mapping exercise as recommended in point 3.4 above.

Further to Recommendations 5.4 (on the variety of assessments) and 6.1 (on the level alignment of the module learning outcomes) above, some additional recommendations on individual modules are given below.

6.5 Modules BIOL7026, *Nutrition and Health*, and BIOL8001, *Clinical Nutrition*

Recommendation: The Indicative Content of BIOL7026 seems very ambitious for a 5-credit module. The module intends to cover key topics in nutrition such as nutrition through the lifecycle and nutrition in the aetiology and treatment of common diseases. There appears to be considerable overlap in content of the disease states aspect of this module and the *Clinical Nutrition* module (BIOL8001), in Stage 4 of the Honours degree. The Panel recommends that the programme team reconsiders the indicative content of both these modules to minimize overlap in content. The Panel notes that a clinical nutritionist will be important in helping to deliver some of the clinical nutrition aspects of these modules.

6.6 Module BIOT6001, *Introduction to Biotechnology*

Recommendation: The Indicative Content might benefit from review, as DNA and Protein has been covered previously in BIOL6007, *Biomolecules and Cells*. It might also be worth providing some examples as to how practical skills are developed.

6.7 Module CHEM6009, *Biological Chemistry 2*

Recommendation: Recommended reading material could include Fischer & Arnold, *Chemistry for Biologists*, BIOS Instant Notes, 3rd ed. 2012, ISBN 978-0415680035. This has been rated very highly by students and comes at a modest cost.

6.8 Module PHYS6044, *Heat and Light*

Recommendation: The programme team should ensure that specific examples relevant to the student cohort are included when this module is delivered.

6.9 Module FOOD6001, *Science of Food and Health*

Recommendation: LO3 could be narrowed down somewhat to ensure achievement of the outcome is feasible for learners in the context of a Fundamental level module. Consider introducing some MCQ-style quizzes to specifically assess the theory associated with the practical elements of this module.

6.10 Module BIOL6024, *Structural Biochemistry*

Recommendation: Consider adding some MCQ-style quizzes to this module to assess the theory associated with the practical elements of this module.

6.11 Module BIOT6002, *Immunoanalysis*

Recommendation: The suggested reading material for this module could be updated.

6.12 Module BIOM6006, *Microbial Diversity*

Recommendation: Consider if this module might be placed earlier within the Ordinary degree, since BIOM6001, *Microbes, Enzymes & Energy* is taught in Semester 2. Also consider reducing the number of MCQ assessments in this module and use the week 7 MCQ as a formative rather than summative assessment.

6.13 Module BIOL6025, *Human Nutrition*

Recommendation: It is suggested that the Indicative Content might be expanded on slightly to give learners a better feel for how this module is taught.

6.14 Module BIOLXXXX, *Introduction to Pharmacology* (new Fundamental module, 5 credits):

Recommendation: The Indicative Content within this module might be at Intermediate rather than at Fundamental level, and the science content might be experienced as quite challenging by the learners. If feasible, the programme board might look at introducing pharmacodynamics later on in the programme. Otherwise, it should ensure that the material is delivered at a very basic level as students will not have any prior learning on this topic.

6.15 Module AGRI6020, *Animal and Crop Science*

Commendation / Recommendation: The variety of assessment types within this module is interesting and promotes student reflection of their own learning; the Panel commends this. Consideration might be given to the necessity to assess every LOs in every assessment, as this might overburden learners.

6.16 Module BIOL6017, *Metabolic Biochemistry*

Finding / Recommendation: This module is very well written and the Indicative Content is rich in detail. The Panel notes however that the module has 8 – 9 LOs embedded in its nominally 5 outcomes. The programme team should consider if/how this can be reduced.

6.17 Module BIOT7002, *Bioanalytical Techniques*

Recommendation: Consider reducing the number of verbs in LO5, as they are somewhat tautological. The module lecturer(s) should also consider how the Indicative Content applies to learners on the *Nutrition & Health Science* Honours degree.

6.18 Module BIOT6007, *Upstream Bioprocessing*

Recommendations: This module has 7 LOs, which is over the norm for a 5-credit module; consider reducing this to between 4 and 6 outcomes. The recommended reading list for this module should also be updated.

6.19 Module BIOL7018, *Nutritional Analysis*

Recommendation: Given that this is actually a Fundamental level module, the students would need guidance on how to read and summarise scientific research papers in order to complete their Project assessment.

6.20 Module *Principles of Food Processing* (new Intermediate module, 5 credits)

Recommendation: Consider using a reflective log for site visits.

6.21 Module CHEM7002, *Food & Healthcare Chemistry*

Recommendations: LO5 currently amalgamates a range of different skills. Consider separating these out into skills elements related to laboratory technique on the one hand and to scientific data interpretation and communication on the other. This also goes for modules BIOM7003, *Food & Healthcare Microbiology*; Module *Food & Molecular Biotechnology* (new module, Intermediate, 5 credits) and Module ENVI7001 *Environmental Science & Industrial Hygiene*.

Additionally, given that the Essay is currently assessing four LOs, consider expanding the assessment range to include e.g. discussion forums, blogs, mind maps or audio submissions. This would better cater for the variety of learner types.

6.22 Module BIOL7026, *Nutrition and Health*

Recommendation: Consider revising the verb in LO2 to clarify how achievement of this outcome is to be demonstrated.

6.23 Module BIOM7003, *Food & Healthcare Microbiology*.

Recommendation: The verbs used in the learning outcomes range from Fundamental to Advanced level; consider revising to better align the outcomes with the Intermediate level of this module. Staff should also consider the health and safety issues in relation to working with potential pathogens.

6.24 Module CHEM7003, *Food Toxicology*

Recommendations: Consider being more explicit in terms of the types of lab experiments that the learner will be exposed to in this module since 40% of the marks are assigned to practical laboratory skills. Furthermore, in the Panel's opinion the Indicative Content of this module is very interesting. As previously noted, a greater variety of assessments would enhance the learning experience for the learners even further.

6.25 Module FOOD7001, *Food Entrepreneurship*

Recommendation: It may be worth considering alternative assessment strategies to a written report that assesses all learning outcomes.

6.26 Module PLAC7001, *Biosciences Placement*

Finding: This module is very well designed and written in a comprehensive manner. The variety of assessments is welcome, as it will provide ample opportunity for all learner types to be assessed in a suitable personalised manner.

6.27 Module *Food and Molecular Biotechnology* (new Intermediate module, 5 credits)

Recommendations: Consider referencing modules BIOM6007, *Bacteriology* and BIOL6024, *Structural Biochemistry*, in the Module Recommendations in case there is a reason for sharing the module with other programmes in future. The descriptor may benefit from a final review prior to submission for approval.

6.28 XXXX *Biosciences Literature Review* (new Advanced module, 5 credits, replacing Module INTR8016, *Project - Research Phase*)

Recommendation: The Panel notes that the module descriptor as submitted did not specify the module level, which is Advanced. While it is assumed that this oversight will be rectified through the final module moderation process, the overall descriptor might be reviewed for correctness and completeness prior to submission for approval.

6.29 Module *Food Regulation and Compliance* (new Advanced module, 5 credits)

Recommendation: Since this module has particular relevance to the food industry, it might be useful to incorporate a site visit or to provide guest speaker lectures.

6.30 Module *Advanced Food Processing* (new Advanced module, 5 credits)

Recommendation: The module descriptor provides little information regarding the overall learning aims of this module; this may be worth reviewing.

6.31 Module *Nutritional Epidemiology* (new Intermediate module, 5 credits)

Recommendation: The SAQs are currently weighted at 60%. It may be worthwhile reviewing the rationale for this assessment type and weighting allocation in an Intermediate module.

6.32 Module *Performance Nutrition* (new Intermediate module, 5 credits)

Recommendation: Both the Course Work assessment (Critique, attracting 30% of the module mark) and the Final Exam are currently associated with all five LOs. Consider reviewing if this is feasible and necessary.

6.33 Module INTR8015, *Project – Implementation Phase*

Commendation: This module includes a reflective element which is commended as this encourages the student to assess their own learning.

6.34 Module BIOL8001, *Clinical Nutrition*

Recommendation: Consider discussion forums etc. as the Indicative Content may lend itself to this type of learning environment.

6.35 Module MGMT8008, *Food Innovation*

Recommendation: Define the assessment type "Other" as it is worth 30% of the marks.

7. DEROGATIONS SOUGHT

Both the Level 7 and Level 8 degrees continue to incorporate a 15-credit Biosciences Placement module in Sem. 6, with the other three modules delivered as 'short fat' modules prior to commencement of the 16-week industry placement. The Honours degree additionally includes a 10-credit project module in the final semester. Both of these existing large modules meet CIT policy requirements on large credit modules.

Both degrees also conform to the maximum of four terminal examinations per semester.

No derogations are sought.

C. PROGRAMME FINALISATION

1. IMPLEMENTATION OF PANEL REQUIREMENTS

	Recommendation Summary	Response/Action Taken
2	GENERAL	
2.3	For future reviews, the Panel recommend new modules might be identified more clearly in the documentation.	The Department will liaise with the Registrar's Office to determine if new modules could be identified more clearly in book of modules and future review documents will identify new modules explicitly.
2.5	Section 7 mentions new assessment modes, but details limited. Some examples of how teaching & learning aligns with assessment would have been useful here, in the format 'learning outcome – teaching method – assessment method'. Perhaps reference should have been made to the assessment matrices.	The programme board will ensure alignment of teaching, learning and assessment is presented in more detail in future programmatic reviews.
2.7	Institute might consider incorporating an overall programme assessment matrix into the programme schedule.	These are currently available from Akari Document.
3	ENTRANT AND GRADUATE PROFILE, AWARD AND PROFESSIONAL ENVIRONMENT	
3.2	POs of BSc in Food & Health Science require updating	PO for the Food and Health Science programme have now been updated.
3.3	POs of BSc (Hons) in Nutrition & Health Science should mention Nutrition in at least one and should be more obviously aligned to the NFQ level of the programme.	The BSc (Hons) Nutrition and Health Science POs have been updated.
3.4	BSc (Hons) in Nutrition & Health Science - If the programme board do not pursue accreditation, strongly recommended to remove the word "Nutrition" from the title	The programme board are going to pursue accreditation. Should this be unsuccessful, the board will reconsider the use of the word "Nutrition" in the title.
3.5	The School needs to be mindful of AFN requirements and increases in Nutrition content for the staffing strategy. In the interim, the use of appropriately qualified guest lecturers to cover additional Nutrition content could be explored.	An advertisement for a full-time lecturer in the discipline of Nutrition is to be published in coming weeks, for commencement in the 2017-2018 academic year. Guest lecturers will be used where to possible to support teaching in specialist areas.
3.6	Section on the CPD of staff in both programme submissions was a little bit too concise. Include more information in future.	Future programmatic review documentation will explicitly state details of CPD activities of staff.

4	PROGRAMME OPERATION AND PERFORMANCE	
4.4	Placement: students should be enabled to select between lab-based and desk-based. Requires determination of a fair process for assigning places. Communication re. students' expectation of work placement should be improved, and the nature of the available placements and the limitations on placement choice needs to be explicitly and clearly set out to the students.	Students are currently able to select their preference between lab-based and non-lab based placements. Every student fills out a questionnaire and are subsequently met by the co-ordinators to discuss their preferences. The students CVs are then sent to the relevant company/Industry and it is at the discretion of the company to select CV's and subsequently interview students. Whether the student is offered the preferred position is out of the control of the co-ordinator. To address the recommendations outlined by the reviewers an additional extended section will be added to the questionnaire where the student can further emphasise their top 5 company/industry preferences.
4.5	The Department should actively facilitate students in obtaining additional physics support.	The Department will liaise with the School of Science and Informatics and Department of Physical Sciences to increase physics supports offered by the Academic Learning Centre.
4.6	At least 2 formal programme board meetings should be held per year. Consider innovative teaching & assessment practices as an agenda item.	Commencing in academic year 2017-2018, two programme board meetings will be held per annum, with innovation teaching and assessment to be included for discussion.
5	PROPOSED PROGRAMME SPECIFICATION (INCL. DELIVERY AND ASSESSMENT)	
5.3.1	For accreditation, at least 50% of modules must contain the relevant content set out in AFN competency document. Some module titles may need changes.	A competency mapping exercise will be completed and the need for module title changes assessed.
5.3.2	The programme board should be cognisant of void move towards AFN accreditation may create in preparing graduates for the food science/ food technology sectors.	The programme board are conscious of the need to maintain graduate readiness for and employability in the food science and food technology sectors.
5.4.1	More varied assessment formats should be designed and implemented. Innovative assessment practices should be explored to reflect and assess the variety and progression of skills and competencies built up by the programmes.	Assessment formats have been reviewed and amended in a number of modules to increase variety and reflect progression of skills. Modules amended: Food Regulation and Compliance, FOOD7006, The Future of Food and Nutrition (renamed Contemporary Nutrition following panel feedback), BIOL8001.

	Consider: CHEM7002, CHEM7003, <i>Food Quality Management, Food Regulation and Compliance</i> , BIOL8001, <i>The Future of Food and Nutrition</i> , FOOD7006	As Food Quality Management and CHEM7003 are delivered on an accelerated schedule, varied assessment formats are limited so as to not overburden the student. The programme board feels that current assessment modes are appropriate.
5.4.2	Richer assessment descriptions should be documented in the assessment description of modules.	Module descriptors have been reviewed and more detailed assessment descriptions provided where possible.
5.5	State in programme literature and future review documentation that students work with non-pathogenic organisms.	A review of the nature of the organisms employed in practical sessions and research projects will be carried out. A risk assessment is now to be conducted for all research projects, commencing in the next academic year.
5.6	For future programme reviews, the programme team should give more and more detailed examples of teaching, learning and assessment practices and innovation. Evidence of continuous, formative assessment should be included.	Future programmatic review documentation will state details of formative assessments, teaching, learning, assessment and innovation practices more clearly.
6	MODULES	
6.1	ALL MODULES: Learning Outcomes for all modules should be reviewed to ensure that they are aligned to the module level. Range of verbs should be extended to ensure the extent of lower and higher order thinking to be acquired is appropriately captured in the LOs as appropriate to the module level.	Module LO and verbs reviewed and amended as appropriate.
6.2	New modules in Stages 3 and 4 - make sure these are research-led and based on recent research within the discipline.	New modules in stages 3 and 4 will be research-led.
6.3	Design academic and professional skills module for early stages to incorporate scientific writing skills, plagiarism & Turnitin, referencing, statistical & computer packages (Word, Excel, etc.).	As development of these skills is embedded within existing modules, the Department will monitor the student's acquirement of these skills in the next academic year, following implementation of the revised programme. If needed, an elective module will be introduced in the early stages of the programme.
6.4	Potential for overlap in Nutrition content - do AFN competencies mapping exercise.	The programme board has considered the Nutrition content of each module and no significant overlap is present. A competency mapping exercise will be completed.

6.5	BIOL7026 & BIOL8001: Content of BIOL7026 very ambitious. Reconsider content to minimize overlap with BIOL8001. A clinical nutritionist will be important in helping deliver some of BIOL8001.	The programme board has considered the content of BIOL8001 and BIOL7026 and no overlap will occur in these modules. Guest speakers will be utilised were deemed necessary.
6.6	BIOT6001: Content might benefit from review. Provide some examples as to how practical skills are developed.	In this module there is a particular focus on biotechnological techniques and applications. Indicative content was updated.
6.7	CHEM6009: Recommended reading material could include Fischer & Arnold, <i>Chemistry for Biologists</i> , BIOS Instant Notes, 3 rd ed. 2012, ISBN 978-0415680035.	CHEM6009 module descriptor, including reading material, is to be updated as part of the upcoming programmatic review in Department of Physical Sciences.
6.8	PHYS6044: ensure examples are relevant to the student cohort.	PHYS6004 module is to be updated as part of the upcoming programmatic review in Department of Physical Sciences.
6.9	FOOD6001: LO3 could be narrowed down to ensure achievement of the outcome is feasible. Consider MCQ-style quizzes to assess the theory associated with the practical elements of this module.	LO3 has been revised, with the use of an alternative verb to ensure achievement of LO is feasible. The use of MCQ-style quizzes as pre-practical activities will be explored.
6.10	BIOL6024: Consider adding MCQ-style quizzes to assess theory associated with the practical elements of this module.	The assessment of theory associated with the practical element of this module will occur in the form of pre-practical questions, which will be graded and will contribute to the final report grade.
6.11	BIOT6002: Update suggested reading material	Reading Material has been reviewed and updated for this module
6.12	BIOM6006: Consider if this module might be placed earlier within the Ordinary degree, since BIOM6001 is taught in Semester 2. Consider reducing the number of MCQ assessments and use week 7 MCQ as formative assessment.	BIOM6001 is delivered in Sem2; BIOM6006 is delivered in Sem3. BIOM6001 provides a general foundation to microbes, which is needed to understand the detailed content in BIOM6006. The sequence as it is, has logic. The number of assessments was already reduced in the programmatic review. And the MCQ at mid semester on BIOM6006 was previously a formative assessment but was deliberately changed to summative in accordance with recommendations for 100% CA modules.
6.13	BIOL6025: Expand on indicative content slightly to give learners a better feel for how this module is taught.	As outlined in module workload, the module will be delivered by labs and lectures. The indicative content has been expanded.
6.16	Intro. to Pharma.: Content at Intermediate rather than at Fundamental level. Consider introducing pharmacodynamics later in programme, otherwise ensure delivery at a very basic level.	Module descriptor reviewed and amended to align with Fundamental level and reflect that Pharmacodynamics will be delivered at a basic level. This module is intended to introduce

		students to the basic concepts of Pharmacology and provide a foundation for later modules.
6.15	AGRI6020: Consider necessity to assess all LO in all assessments.	The nature of the assessments for this module facilitates the assessment of all LOs in all.
6.16	BIOL6017: 8 – 9 LOs embedded in its nominally 5 outcomes. Consider reducing.	The wording of the LOs for this module has now been changed to address the panel's recommendation.
6.17	BIOT7002: Reduce number of verbs in LO5. Consider how IC applies to learners on the <i>NHS</i> degree.	LO5 has been reviewed and minor change made to address this. Reviewed IC with respect to all programs including <i>NHS</i> .
6.18	BIOT6007: reduce LOs from 7 to 4-6. Update reading.	Considered and left as is. Reading list is correct.
6.19	BIOL7018: Students would need guidance on how to read and summarise scientific research papers in order to complete their Project	Students will be supported by the lecturer with preparation of projects, both in lectures and through the use of resources.
6.20	Principles of Food Proc.: Consider a reflective log for site visits	The use of reflective logs for site visits will be implemented for this module
6.21	CHEM7002: LO5 amalgamates a range of skills - separate out into skills related to lab technique and scientific data interpretation & communication. This also goes for modules BIOM7003, <i>Food & Molecular Biotechnology</i> , ENVI7001. Consider expanding the assessment range to include e.g. discussion forums, blogs, mind maps or audio submissions.	Learning outcomes for BIOM7003, <i>Food and Molecular Biotechnology</i> and ENVI7001 have been split to separate skills, to reflect the reviewer's comments.
6.22	BIOL7026: Revise verb in LO2 to clarify how achievement of this outcome is to be demonstrated.	Verb in LO2 has been modified
6.23	BIOM7003: Revise verbs to align with Intermediate level. Consider health & safety in working with potential pathogens.	Verbs revised to align with intermediate level. Bacteria used in lab practicals are non-pathogenic.
6.24	CHEM7003: Be more explicit in terms of the types of lab experiments. Varied assessments would enhance learning.	Further description of types of lab experiments is now included in indicative content.
6.25	FOOD7001: Consider alternative assessment strategies.	The assessment strategies for this module have been reviewed and alternative assessment have been added.
6.27	Food and Molecular Biotechnology: Reference modules BIOM6007 and BIOL6024 in Module Recommendations in case there is a	BIOM6007 and BIOL6024 have been added as recommended modules.

	reason for sharing the module with other programmes in future. The descriptor may benefit from a final review prior to submission.	
6.28	BioSciences Literature review: descriptor did not specify module level. Review descriptor for correctness and completeness.	The module descriptor has been revised.
6.29	Food Regulation and Compliance: Incorporate a site visit or provide guest speaker lectures.	Guest lecture speakers are being provided for this module.
6.30	Advanced Food Processing: descriptor provides little information regarding the overall learning aims of this module – review.	The module descriptor has been revised.
6.31	Nutritional Epidemiology: Reviewing the rationale for type and weighting of SAQs worth 60% in an Intermediate module.	This 60% assessment has been changed to an end of semester formal examination.
6.32	Performance Nutrition: Course Work and Final Exam currently associated with all 5 LOs. Consider if feasible and necessary.	The programme board feel that it is feasible and necessary that all learning outcomes be assessed by critiquing research papers in a range of topics and by end of module formal examination.
6.34	BIOL8001: Consider discussion forums etc.	Professional Discussions have now been included as an assessment mode in BIOL8001.
6.35	MGMT8008: Define the assessment type "Other" as it is worth 30% of the marks.	The assessment type for this module has been reviewed and amended.

2. MODULE AND PROGRAMME MODERATION

Module and programme descriptors have been amended in line with feedback from the panel and module moderator. The module and programme descriptors are proposed for adoption by Academic Council.

The schedule for the Common Entry in Biological Sciences has been updated.

Modules from the Department of Physical Sciences delivered on these programmes were not updated. They must be reviewed as part of the department's forthcoming programmatic review.

D. APPENDIX – SEQUENCE OF PHASE 2 MEETINGS – FOOD / NUTRITION & HEALTH PROGRAMMES

DAY ONE (TUESDAY, MARCH 28TH, 2017)

11.00 am – 11.30 pm		Private Panel Meeting including presentation by Registrar's Office
11.30 am – 12.00 pm		Department Overview Presentation / Discussion
12.00 am – 12.45 pm		Departmental Research Overview - Links to Teaching
12.45 pm – 1.45	pm	Private Panel Lunch
1.45 pm – 3.15	pm	Meeting with Dept. Teams re Programme Operation and Performance
3.15 pm – 3.45	pm	Private Panel Meeting (Tea/Coffee)
3.45 pm – 5.15	pm	Meeting with Dept. Teams re. Proposed Changes to Programme Structures
5.15 pm – 6.00	pm	Meeting with Recent Graduates and Employers
8 pm		Panel Dinner

DAY TWO (WEDNESDAY, MARCH 29TH, 2017)

9.00 am – 9.15	am	Private Panel Meeting - emerging themes
9.15 am – 10.15	am	Meeting with Students
10.15 am – 10.45 am		Private Panel Meeting (Tea/Coffee)
10.45 am – 12.30 pm		Meeting with Dept. Teams re. General Review of Modules
12.30 pm – 1.30	pm	Private Panel Lunch
1.30 pm – 2.30	pm	Sub-panel meetings to draft outline reports
2.30 pm – 3.30	pm	Feedback to overall panel - themes
3.30 pm – 3.45	pm	Feedback to school and department management