University of Reading

PERIODIC REVIEW OF FOOD AND NUTRITIONAL SCIENCES

Reviewing programmes delivered by the Department of Food and Nutritional Sciences in the School of Chemistry, Food and Pharmacy

INTRODUCTION

1. An internal review of programmes in Food and Nutritional Sciences was held on 26 and 27 November 2018. The members of the Panel were:
   - Professor Elizabeth McCrum, Teaching and Learning Dean *(Chair)*
   - Dr Ian Noble, Senior Research, Development and Quality Director: Mondelēz International; Honorary Professor Chemical Engineering: University of Birmingham *(external member, industry)*
   - Dr Wendy Hall, Reader in Nutritional Sciences: King's College London *(external member, subject specialist)*
   - Emma Weston, Associate Professor in Food Sciences: University of Nottingham *(external member, subject specialist)*
   - Professor Amanda Callaghan, Professor of Invertebrate Zoology: School of Biological Sciences *(internal member)*
   - Louise Hague, School Director of Teaching and Learning: School of Law *(internal member)*
   - Tom Wise, MSci Psychological Theory and Practice, School of Psychology and Clinical Language Studies *(student member)*
   - Richard Sandford, Senior Quality Support Officer: Centre for Quality Support and Development *(Secretary)*

2. The Panel met the following:
   - Professor Richard Frazier (Head of Department)
   - Dr Gunter Kuhnle (Director of Teaching and Learning)
   - Dan Grant (School Director of Teaching and Learning)
   - Dr Emma Bennett (Lecturer in Food and Nutritional Sciences)
   - Dr Colette Fagan (Programme Director for Food Science and Food Technology programmes)
   - Dr Qiaofen Cheng (International Student Tutor)
   - Dr Vimal Karani (Programme Director for BSc Nutrition programmes)
   - Professor Jeremy Spencer (Programme Director for MSc Nutrition programmes)

3. The Panel met students who represented the following degree programmes:
   - BSc Nutrition with Food Consumer Sciences with Professional Training
   - BSc Nutrition and Food Science
   - BSc Nutrition and Food Science with Professional Training

- BSc Food Science
- BSc Food Science with Industrial Training
- BSc Food Technology
- BSc Food Technology with Bio-processing with Industrial Training
- MSc Nutrition and Food Science
- MSc Food Science

4. The Panel met recent graduates from the BSc Nutrition and Food Science and MSc Nutrition and Food Science, and employers representing Food and Drink Sector (including Eurofins, Mars and Sensory Dimensions).

GENERAL OBSERVATIONS

5. The Review Panel met with a range of staff from across the Department, and senior leadership from the Department. The staff were engaged with the process and made the Panel feel welcome. The review benefitted from a comprehensive and well-organised Blackboard organisation, and any additional information requested by the Panel was quickly supplied by the Department. The Panel found the resources provided invaluable in their review of the Department's activities. The Panel welcomed the opportunity to tour the extensive facilities which were available to all students. The Panel extends its thanks to the Department for its hospitality and engagement with the process.

6. The Panel was pleased to meet and question current undergraduate and postgraduate taught students. They found the students to be passionate about their subject and enthusiastic about the opportunities afforded by the Department, in particular the facilities and support provided in the application for, during and after the placement process. The Panel wishes to express its thanks to these students, and to the students who contributed to the Student Submission, for their valuable input into the Review.

7. The Panel met with recent alumni and found them to be both a credit to, and enthusiastic advocates of, the Department. The Panel wish to thank them for their valuable input. The Panel also met with key employers in the Food and Drink Sector, who attested to the skills, knowledge and dedication of Reading alumni in their employ, and to the strength and reputation of the Department's offering. The Panel was grateful for the insights provided during their discussions with alumni and employers and thanks them for their generous engagement with the process.

Committee structures

8. Overall the Panel was satisfied that the committee structures in place were appropriate and effective for the quality management and enhancement of the programmes.

9. The Panel found evidence, in the form of minutes of meetings, that the various Department and programme level committees were fulfilling their formal responsibilities in respect of quality management and enhancement. This included giving consideration to External Examiner Reports, National Student Survey (NSS) and Postgraduate Taught Experience Survey (PTES) results, annual quality assurance and enhancement reporting and proposals for new programmes/amendments to existing programmes.

10. The Panel considered that the Department made use of a range of datasets. They were aware of key issues raised by students in their response to the National Student Survey and have made plans to address these areas. There was evidence that the External Examiner reports were being considered and responded to and that their recommendations were addressed by the Department.

Programme design

11.   The noted that programme aims and learning outcomes have not yet been formally reviewed using the Curriculum Framework. However, they are aligned with the QAA *Subject Benchmark Statement for Agriculture, Horticulture, Forestry, Food, Nutrition and Consumer Sciences*[1] and relevant accreditation frameworks. The Panel stresses that the Department needs to make meaningful engagement with the Curriculum Framework Review at its earliest opportunity.

12.   There is a clear progression from fundamentals in Part 1, to theory in Part 2, to applied knowledge in Part 3 across the undergraduate programmes. This has been clearly been mapped by the Department. The Panel found that programme aims are outlined in Programme Handbooks, but that details of learning outcomes are not included. Whilst some of the learning outcomes are detailed on the module descriptions online this is not universal or uniform. The Panel felt that the Department's mapping of themes is to be commended, but that it should be communicated to students in a clear way (perhaps via the Programme Handbook) in order to show how the modules are connected within and between themes. Additionally, a curriculum map would be beneficial for the students to understand how the programmes deliver in terms of technical skills and broader competencies. The Panel recommends that the learning outcomes should be reviewed across the modules and, as necessary, revised using Bloom's taxonomy; programme learning outcomes should be mapped across modules and programme outcomes and module level outcomes should align **[desirable recommendation n(i)]**.

13.   The Panel found evidence of progression of mastery of the discipline and skills development amongst the student body. In order to better support the develop skills and mastery of discipline the Department needs to engage with the Curriculum Framework.

14.   The Panel noted that delivery of modules uses a variety of approaches, with interactive and practical components contextual to the subjects covered in the programmes. The modules facilitate the development of independent learning and broader communications skills by a variety of assessments and associated activities.

15.   The Panel was unable to discern any evidence that an end of year course review process occurs where aims and outcomes can be reviewed in light of any cumulative effects that small changes to modules and programmes may have precipitated (although there is an informal meeting with finalists during Part 3 – see 81 below). Therefore there appears to be no mechanism to ensure the continued alignment of aims and outcomes. In discussions with staff the Panel learned that small changes are discussed in informal Departmental teaching group meetings, held to discuss themes such as exam results, recruitment, or peer review. The Panel was disappointed to note that these meetings are not minuted. These small changes are not formally communicated to the students. The Panel recommends that the Department review its processes for amending course content, delivery and assessment to ensure that they are made in line with University policy and procedures (including appropriate timescales and consultation with students) and clearly communicated to all stakeholders **[advisable recommendation c]**.

16.   The portfolio of postgraduate programmes is currently being redesigned. The Panel felt that this would be a useful exercise and could usefully inform activities around the Curriculum Framework.

17.   The Panel noted that programme design takes pro-active and anticipatory account of the needs of the varied student body in defining learning outcomes. There is provision of an "English for Food Science" module for students joining in Part 2 from China and Malaysia. A member of academic staff, Dr Qiaofeng Chen, acts as a point of contact for Chinese students. Lecture recording is encouraged but there is no university-wide lecture capture system (see also 41

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[1] www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-agriculture-horticulture-forestry-food-nutrition-consumer-sciences-16.pdf

below). Students with disabilities have support from University level systems, and there is a disability officer for the department.

18. The Panel found the programmes to be coherent and the core topics within the curricula to be of notable breadth and scope. The content was up to date, with one employer commenting that Reading produces graduates with excellent food safety awareness **[good practice a]**.

19. The Panel felt that in reformulating the postgraduate provision the MSc Nutrition and Food Science does not contain enough 'food science' content to merit that title; there is a relative lack of breadth in that area. The Department has noted these concerns and plans to address them before submitting the final proposals to the University Programmes Board.

20. Owing to the structure of the undergraduate programmes there is limited scope for flexibility to undertake language learning in the undergraduate curriculum (see also 40 below). Students have the opportunity to take a language module if they have a 20 credit option but this is not widely adopted. Study abroad engagement is low in the Department, due to the more prevalent industrial working year (which can be taken abroad, in the event of suitable placements being secured).

21. The Panel commends the extent to which programmes afford opportunities for students to learn about current research in the disciplines. Many of the departmental staff are internationally renowned in their research field, which informs lecture content and practical sessions. Students have opportunities to apply to do their research project in the labs of research active staff. In addition, the research symposium exposes students to current research in the Department **[good practice b]**.

22. The Panel found evidence that a number of undergraduate modules framed the subject in a global context. The topic of sustainability is a key theme in the discipline, and the Department's undergraduate programmes address these to an appropriate level. The Panel cautioned that the redesign of the postgraduate programmes should ensure that global issues and sustainability are suitably treated in the new structures **[good practice c]**.

Assessment and feedback

23. External Examiners' Reports verified that the standards achieved by learners met the minimum expectations for the awards, as measured against the *Subject Benchmark Statement Agriculture, Horticulture, Forestry, Food, Nutrition and Consumer Sciences*. All of Department's programmes are accredited by the Institute of Food Science and Technology (IFST) and the Association for Nutrition (AfN). It was clear to the Panel that comments made by the External Examiners were considered by the Department, and that colleagues are reminded to take them into account when setting assessments.

24. The Panel noted and commended the Department's progress towards full compliance with the 15-day turnaround time for feedback requirement.

25. The Panel recommends that the Department should continue its review of assessments and revise them as part of its Curriculum Framework programme review to ensure that they are of the appropriate level.

26. The Panel commends the diverse range of assessment methods which are employed in the programmes. These are used to good effect and have been praised by External Examiners. Assessment methods include exams, essays, oral presentations, case studies, peer-reviewed group work, and portfolios **[good practice d]**.

27. The Panel was pleased to see that in many modules, summative assessments are preceded by similar formative assessments with detailed feedback based on pre-specified assessment criteria provided to the students **[good practice e]**.

28.   The Panel commended the fact that some modules use innovative methods to encourage better engagement with feedback. For example, in the Nutrition Epidemiology and Dietary Assessment (FB2NED) module students can earn an additional 5 marks by completing an exercise where they provide some 'self-reflective' feedback on the marks and feedback that they have already been awarded for their work. The Panel felt that this helped students become more critical learners who effectively engaged with the feedback that they received **[good practice f]**.

29.   The Panel noted with some concern that no feedback was given on final year projects. Given that assessment is for learning, students should have some opportunity to learn from project feedback. This is particularly true if they are going on to study an MSc or PhD. The Panel recommends that the Department provides project feedback (i.e. on final year projects), which should include provision of the supervisor's feedback report **[necessary recommendation a]**.

30.   The Panel welcomed the work undertaken by the MSc Programme Review Working Group which was established in January 2018 and were pleased to see that the issue of over-assessment in the number and timing of assessments is being considered by that Group. The Panel welcomed the plans to redesign the MSc programmes to include two weeks of assessment and short fat modules. However, the Department is asked to put in place procedures to deal with issues of student absences during the short fat modules and assessment window.

31.   The Department recognises that "[t]here is considerable variability in the number of assessments per module, and no clear relationship between the number of assessments and the number of credits across the programmes". Similarly, students have expressed concern in relation to a) the number of assessments; b) the bunching of deadlines (particularly in part two when there were additional deadlines and pressures related to finding placements) and c) the relatively low weighting of coursework as compared to the examination. The Panel was pleased to note that the School is already well aware of the need for a substantial rethink of its assessment regime at undergraduate level and commends the SDTL for instigating a mapping of the current position. However, the Panel recommends that the Department urgently considers these issues as part of its Curriculum Framework Review **[advisable recommendation d]**.

32.   In the 2013 Periodic Review, the Panel advised that "[t]he Department should take steps to ensure the closure of feedback loop to all students so they are clear when and what changes have/have not taken place and why…". The response at the time was that a procedure would be put place. It appears that the Department discusses issues generically at SSLCs, and the current Panel does not feel that this is sufficient. Given the comments of the students, the Panel feels that an alternative procedure is required and the Panel recommends that the Department gives this issue some further consideration (see also 79 below).

33.   Recent National Student Survey scores and qualitative comments indicated that there was still work to be done in respect of the promptness and quality of feedback, particularly in its timeliness and usefulness for the next assignment. The Panel noted that there is a lack of consistency in the quality of feedback across modules. The Panel examined feedback and found a variety of approaches taken to its delivery: some use standard rubric step-marking for all grades with generic comments to guide students, accompanied by annotation on the face of the assessments, whilst others give quite detailed feedback in the comments section on Turnitin (but a lack of annotation on the assessments themselves may make it difficult for students to identify the places in their work to which the comments relate). The Department should consider ways of addressing this **[advisable recommendation e]**.

34.   The Panel heard that students would like to see a higher weighting given to summative assessments undertaken during the year. These measures would enable a move away from the current emphasis on examination-based assessments and better support the diversity of

learning styles amongst the student body. The Department should consider ways of addressing the weighting of summative assessments as part of their Curriculum Framework Review.

35.   The Panel noted that modules which are assessed by both practical and written elements are currently re-assessed by examination only. Whilst it is acknowledged that the Department might not wish to increase the number of practical re-assessments, for both logistical and educational reasons, they should take steps to ensure that the exam reflects the educational outcome of the module.

QUALITY OF LEARNING OPPORTUNITIES OFFERED BY THE PROGRAMMES

Teaching and learning

36.   The Panel felt that the quality of teaching and learning is very good within the Department. Students reported that they participated in positive learning experiences and valued the quality of teaching provided by staff, and that the teaching was informed by the research interests of staff. There is a wide range of teaching materials and diverse experiences available to students. The Panel recognises the strong culture of research-led teaching in the Department, noting that almost all staff are on Teaching & Research contracts.

37.   Staff employ a wide range of teaching methods in both their Undergraduate and Postgraduate teaching. This includes the use of technology to further enhance and inform teaching and learning styles.

38.   The Panel commends the fact that the undergraduate final year Research Projects continue to provide students with the experience of being involved in research that reflects their future career opportunities and enhances their learning experiences **[good practice g]**.

39.   The Panel noted that some students undertaking the final year Research Project module were allocated places on pre-existing research projects (i.e. supporting research already underway within the Department). The Panel expressed some concern that the learning outcomes for the module might not be met as such students would not have the opportunity to have input into the design of the project. The Panel was satisfied that the Department is monitoring this situation and has informed students that they can design their own projects. They recognise that it would be ideal to let all students design and develop their own research project, but that this comes with an additional logistical and administrative burden which they are currently unable to manage. Additionally, many students have indicated that they are unsure which direction their research should take and welcome the option to undertake work in a pre-designed project.

40.   Students expressed some dissatisfaction with the number of optional modules available to them (i.e. in terms of credits). Whilst undertaking their Curriculum Framework Review the Department is advised to review the provision and availability of optional modules for students across their programmes (noting the requirements of the appropriate PSRBs) **[desirable recommendation o – see also §20 above].**

41.   The Panel commends the Department's early forays and development of lecture capture in the Department, noting that this will provide useful case studies should the University adopt such activities on a wider basis **[good practice h]**.

42.   The Panel recognises that the success of lecture capture is dependent on staff engagement with the initiative, which has meant that full coverage has not been achieved. The Panel suggests that the Department aims for consistency across all modules where possible and that student involvement with the initiative may help to increase coverage.

43.   The Panel noted that since the University embarked on the Curriculum Framework Review there have been two School Directors of Teaching and Learning within the School. This has meant that progress on this initiative across the School has been delayed. The current School has identified three key streams to be developed during the Review and leads have been assigned to these, with expressions of interest requesting volunteers for the associated working groups. The Panel recognises the work being undertaken at a School level but encourages the Department to consider how to best facilitate these activities at a departmental level. One of the key ways in which local ownership can be developed is through the engagement of students in the Review process. The Department should seek ways to capture the student voice and ensure that a dialogue between the Department and student body is maintained throughout the process **[desirable recommendation n(ii)]**.

44.   The Department has undertaken an excellent Skills Mapping Exercise which allows students to incrementally develop the necessary academic and practical skills required across the entirety of all the programmes. The Panel recommends that this model is utilised in a review of assessment and feedback (i.e. Skills Map) as part of the Curriculum Framework activities **[desirable recommendation n(iii)]**.

Student admission, retention, progression and attainment

45.   The Panel confirmed that there are appropriate and effective arrangements for admission in accordance with the University's Admissions Policy as well as induction into higher education during Welcome Week which gives students an introduction to teaching and learning at the University. The Panel found that Farm to Fork (FB1AG2) module has been designed to support the transition of students into the discipline and was recognised by students are being particularly effective in doing so **[good practice i]**.

46.   Over the past three years undergraduate enrolment to the programmes has remained static. At the same time there has been a slight drop in applications. In the past the Department has benefited from conversion rates of up to 40%, but more recent efforts to increase enrolments through increased offers has not met with similar successes. The Department feels that this failure to convert is, in part, due to changes in the admissions process which has seen activities centralised and interviews removed. The Department should work proactively with the Admissions and Marketing teams in order to find ways to address the issues around conversion.

47.   The Panel found that the Department has a commendable range of outreach programmes which help to attract potential students to Reading. These include a Summer School (for year 12 students), International Summer School and Study Abroad Partnerships with Thailand and China (which see around five to seven students each year study on the Department's programmes).

48.   The Panel noted that the proportion of finalists achieving 1st class degrees in the 2016/7 academic session was significantly above the University's average and that of the sector (the Department achieved 45% versus the University's average of 26%). External Examiners suggested that the marking scheme for the research project suffered from a mismatch between the rubric and the written guidance; as such going through the rubric whilst marking would seem to encourage higher marks. The Department should revisit the marking scheme and adjust weightings accordingly and/or provide better training for its markers and moderators **[advisable recommendation f]**.

49.   The Department has identified an issue with the progression rates of BAME students, in particular Asian (Chinese) students, and that this might be due to language difficulties. The Panel is pleased to note that the Department is offering additional language support and have introduced an International ASK Advisor. In discussions with students from Henan the Panel discovered some dissatisfaction about the levels of integration between international and home

students. The Henan students felt that this could be better facilitated and that the current activities (i.e. an initial party at the start of the year) was not sufficient **[advisable recommendation g]**.

50. The Panel was satisfied that student progression was appropriate to the stated aims of the programmes and consistent with the attainment of intended learning outcomes. The Panel discovered no issues with student progression.

Learning environment and student support

51. The Department has the staff expertise and physical resources required to support effective teaching and delivery of the Departments' programmes. The Panel commends the enthusiasm of staff in their teaching and learning and interaction with students.

52. The Department has excellent facilities which allow students to engage in authentic food sciences and nutrition experiences. The Panel welcomes the recent University £1 million investment in the pilot plant buildings which allowed for the plant to be extended. The Panel recognises that although the pilot plant is extensive, much of the equipment is old (albeit, very well maintained). The Panel notes that staff would like further investment in the pilot plant to ensure the fabric of the facilities continue to satisfy health and safety requirements in the future. Of particular note is the recent upgrade of the teaching laboratories and the excellent Clinical Nutrition facilities (Hugh Sinclair Unit of Human Nutrition) **[good Practice j]**.

53. The Panel understands that a key member of the technical support team is due to retire imminently. The Panel would like the Department to ensure that technical support is consistent for staff and students for the future.

54. The Department recognises that there is a lack of independent study space in the building for their students. The Panel recommends that the Department explores the possibility of providing additional independent study space for students **[desirable recommendation p]**.

55. The Panel are concerned that there is not enough international student representation at Departmental and School level meetings (e.g. the SSLC). There are International Student representatives for each year group but they do not appear to attend meetings to which they are invited, instead the students will approach the Department's excellent International Support Tutor to discuss any issues they may have. The Panel recommends that the Department encourages students to engage with the relevant committees **[advisable recommendation h]**.

56. The Panel commends the International Support Tutor for the excellent support provided to international students throughout their studies in the Department **[good practice k]**.

57. The Panel suggests that the Department investigates the possibility of rolling out the STAR mentoring for international students entering the University in parts 2 or 3. This would enhance the student's integration into their programme and enhance the student experience.

58. The Panel noted student concerns about the (re-)integration of students (i.e. those returning from placements, international students entering midway through a programme, with those students who have not undertaken a placement). The students had various suggestions about how to better support student (re-)integration and the Department should work with students to organise events and other activities to facilitate and better develop a sense of community amongst these students and their peers.

59. The Department has introduced Peer Assisted Learning (PAL) for one selected Part 1 module. It has been suggested that student uptake has not been at the levels hoped for, as it was a struggle to recruit Part 2 PAL tutors. Students were initially enthusiastic but attendance dropped off once students perceived that the sessions did not seem to offer anything different from the lectures. The Panel recommends that the Department continue to explore how to successfully embed

this initiative and, to that end, seek support from the PAL Leader Forum **[desirable recommendation q]**.

Employability

60. The Panel was provided with data demonstrating a high level of employment amongst graduates six months after graduation. DLHE data from 2011/12 to 2016/17, when averaged out, indicates that 95.2% of undergraduate respondents are in work or further study six months after graduation (92.3% of those at professional/managerial level), and 83.1% of postgraduate respondents are in the same (with 95.9% of those in professional/managerial roles).

61. The Panel identified an apparent decline in engagement from industrial members in the Industrial Advisory Board. This was most noticeable with the biennial meetings, but content-specific meeting (e.g. the MSc Programme Review Working Group) appeared to attract good levels of engagement. The Department is counselled to investigate ways to improve engagement with the participants in this forum (e.g. through 'virtual' meetings and themed events) in order to ensure that strong ties are maintained with industry and that programme content remains relevant to the sector **[advisable recommendation i]**.

62. The Panel noted that there was very limited engagement with representatives from the field of Nutrition on the Industrial Advisory Board, or through other obvious networking activities. The Panel recommends that the Department should consider setting up a Professional Advisory Board (or similar) to support the Nutritional Sciences Agenda; such a board should include representatives from Public Health Bodies, Clinical Research Groups and academic researchers **[desirable recommendation r]**.

63. The Panel found that undergraduates were suitably prepared for the global workplace, in part because of the diversity of the cohort and the fact that students were deliberately placed in mixed/random work groups for the final year New Product Design project. However, discussions with staff and students indicated that there may be opportunities to improve postgraduate students' preparedness for the global workplace through similar activities and initiatives.

64. The Panel felt that the final year New Product Design project is a fitting culmination to the programme. They provide an invaluable learning experience which prepares students for employment, and alumni spoke enthusiastically about the experience. It is run as an open competition with mixed student teams (comprising international and home students, and students from placement and non-placement programmes) pitching their final developed product, consumer concept and market proposition to a panel of judges from the Industrial Advisory Board. The winning team is then selected to go forwards to the UK leg of the international Ecotrophelia competition **[good practice l]**.

65. The Panel recognises the importance of industrial placements as an invaluable learning experience in preparing students for employment. The Department demonstrates strong support for students undertaking placements, as evidence by the high level of available materials and feedback from students on the engagement offered to them. All placement students have to compete directly with students from other UK and non-UK universities through company led placement recruitment processes (e.g. interviews and exercises) for paid placements. Students indicated that they appreciated the support they received in preparing for the competitive applications process, and industrial partners indicated that students were well-prepared ahead of their placement **[good practice m]**.

66. The placement option is very well represented with 50% of students enrolled on placement versions of programmes for 2013 entry and over 65% for 2017 entry. Students have indicated that, through their placement, they have gained in confidence, business awareness, time management, and in communication skills. In pre-placement activities students indicated that

desired outcomes included CV building, exploration of potential roles/work areas and greater understanding the reality of the Food and Drink Sector. Feedback on experience and personal growth from industrial placements was consistent from alumni, post-placement final year students and staff, all reporting that returning students had grown in confidence, communication skills, commitment to work, time management and personal maturity.

67. Whilst noting the richness of the placement opportunity, the Panel was disappointed to note that this was not currently widely available to international students. The Panel encourages the Department to find ways to engage international students in work experience in industry, public bodies or through academic research opportunities **[desirable recommendation s]**.

68. The Panel heard that students felt they would benefit from more explicit and formal feedback on their placement activity. The Panel agreed that this feedback would usefully inform the students' final year and recommends that the Department explores ways in which it can capture 'verbatim' feedback from the industrial supervisor via the feedback form. This could be used for reflection, discussions with Academic Tutors and support interview practice and associated activities **[desirable recommendation t]**.

69. The Panel agreed that students who do not undertake the placement opportunities could be better supported in developing their commercial skills and employability. The Department should consider how it promotes the THRIVE mentoring scheme and RED Award to these students, and proactively support their engagement in them **[desirable recommendation u]**.

70. The Panel felt that the already strong employability offer for undergraduate students could be further enhanced during the final year. Students could be made better aware of the diversity of career pathways in the Food Sector, supported to better reflect upon and articulate their competencies, refresh their interview skills, and generally helping them to grow their awareness and preparedness for securing their desired employment. In order to further this aim, the Department could engage targeted support from the Careers Services, alumni panels, externally led lectures (industry, public bodies and academia) and leverage links via the Food Industry Symposium **[advisable recommendation j]**.

71. The Panel found that the employability offering for postgraduate students was strong, but could be supplemented by better links with the Careers Services. The Department is encouraged to work with the Careers Services to investigate how to improve the employability offering for all students. The Department should also network with other Schools and Departments to discover how they support the employability of their postgraduate students.

72. The Panel noted that a number of students (e.g. those not on "... with Industrial Training" versions of programmes) are not exposed to factory based experiences. The Department is encouraged to find ways to increase student exposure to real-world activities and experiences, possible through Reading University Food and Nutrition Society (RUFANS) contacts and activities **[desirable recommendation v]**.

73. The Panel received positive feedback from current postgraduate students about the support they received around employability. They valued the daily email updates about job opportunities, the ongoing support for training and the recent inclusion of the THRIVE mentoring initiative.

74. The Department is encouraged to continue with the planned curriculum mapping exercise and extends its scope beyond postgraduate programmes to include undergraduate programmes too. This should help students identify the skills they have developed and be better articulate this learning when they are entering the world of work.

75. The Panel noted that the Department is competing in a global marketplace and has a strong reputation in the areas of product nutritional design, acceptability and sustainable, nutritionally advantaged processing. However, its facilities are starting to fall behind those of key competitors (e.g. Waagengingen, ETH-Zurich, Technical University of Munich and University of

Massachusetts). The University is asked to monitor this situation and assess the competitive advantage of the Department through addressing issues around facilities and capabilities in light of competitor institutions **[advisable recommendation to the University x]**.

ENHANCEMENT OF QUALITY AND ACADEMIC PROVISION

76.   The Panel was pleased to note that many staff in the Department have a teaching qualification. They note that this is the results of engagement of early career staff with the University's Facilitating Learning and Teaching Achievement and Individual Recognition (FLAIR) taught Academic Practice Programme. They welcomed work across the School to encourage engagement with the FLAIR CPD scheme, which will help support the further development of teaching and the student experience and enable staff to get professional recognition for their work in teaching and learning.

77.   The Panel noted that engagement with Peer Review of Teaching in the Department has been limited to very few staff. They welcome plans to share good practice from other Departments in the School to address this in the coming academic year. The Department needs to embed peer review into its quality management and enhancement processes as a supportive mechanism to enhance practice and to share good teaching practice **[necessary recommendation b]**.

78.   The Panel recognised that the School had developed plans to enhance the quality of its provision and that changes were already in progress in areas as a result of the beginning Curriculum Framework Review. There have been opportunities for staff across programmes to disseminate good and effective practice through parts of School and Departmental Away Days; informal Teaching Enhancement Groups; and as part of Departmental Meetings. Recent examples of staff development work in the Department have focused on their early adoption of e-submission feedback and grading.

79.   The Panel was satisfied that issues raised by student module evaluations were given some consideration and that appropriate actions were taken. However, the Panel questioned whether students were always aware of changes that had been made as a result of module evaluation. It recommends that the Department explore additional means to ensure that the student body is informed of actions taken as a result of module and programme evaluations thus 'closing the feedback loop' **[advisable recommendation k]**.

80.   The Panel noted that the Department does not yet make systematic use of mid-modular evaluation. They recommend that the Department ensure that some form of informal, light-touch mid-module evaluation is undertaken for all modules on an annual basis. This will enable the resolution of practical and operational issues and where possible minor changes can be made that will benefit the current cohort of students **[advisory recommendation l]**.

81.   The Panel noted the Department currently organise an informal meeting of finalists across programmes during Part 3. They recommend that the Department build on this to introduce some form of formal programme Evaluation for all programmes on an annual basis **[advisory recommendation m]**.

82.   The Panel commended the Module Convenor Reports as a potentially useful mechanism for reflecting on student performance, evaluations and feedback. They recommend that all Module Convenors should be supported to fully complete these and they encourage the Department to consider making these reports, or a version of them, available to students as part of their work to close the 'feedback' loop **[desirable recommendation w]**.

83. The Panel welcomed the Schools plans to engage students in their Curriculum Framework Review. They also note that the Industrial Advisory Board could be drawn upon to inform the curriculum from the perspective of alumni and employers (see also 62 above).

MAIN CHARACTERISTICS OF THE PROGRAMMES UNDER REVIEW

84. The Department has a long-standing world-wide reputation and offers a rich research-informed curriculum. Students are given an excellent grounding in both practical and theoretical skills. They are provided with rich insights into relevant legislation. Students are afforded opportunities to engage with research activities and hands-on practical applications, which helps prepare them for employment.

85. The programmes have a breadth of scope and content which remains relevant to the food science and nutrition industries. The Department and its programmes have a truly international flavour, the integration of cohorts from Henan (China) and Taylor's (Malaysia) help provide a vibrant and inclusive learning environment. Topics relating to sustainability within a global context are embedded within the programme design. The programmes are richly informed by current and cutting-edge research.

86. The Department's extensive facilities and equipment provide excellent support for students' learning. The Hugh Sinclair Unit of Human Nutrition's clinical suite is possibly sector-leading, and unusual for an institution without an associated Medical Science activity. The Food Processing Centre is well-equipped but with some of the equipment becoming outdated or tired. The Department has recently benefitted from refurbished laboratory facilities. All of these facilities are open to students and provide first-class learning and research opportunities to them.

87. The Panel saw a Department with a dedicated and renowned faculty who endeavour to provide the best outcomes for their students.

CONCLUSIONS ON INNOVATION AND GOOD PRACTICE

88. The Panel identified the following as representing particularly good practice:

    a. Breadth and scope of core topics for within undergraduate curricula (§18)

    b. Programmes afford opportunities for students to learn about, and contribute to, current research in the discipline (§21)

    c. Undergraduate modules are framed within a global context and have topics around sustainability embedded in them (§22)

    d. The diverse range of assessment methods which are employed in the programmes (§26)

    e. In many modules, summative assessments are preceded by similar formative assessments with detailed feedback based on pre-specified assessment criteria §27)

    f. The use of student self-reflective feedback in order to encourage more effective engagement with feedback received (§28)

    g. The final year Research Project provides students with the experience of being involved in research that reflects their future career opportunities and that also enhances learning experiences (§38)

    h. Early adoption of learning capture activities (§41)

i. The design of the Farm to Fork (FB1AG2) module supports the transition of students into the discipline (§45)

j. Clinical facilities for nutrition (the Hugh Sinclair Nutrition Unit) are commendable, alongside the recently refurbished laboratories (§52)

k. The International Support Tutor provides excellent support to international students throughout their studies (§56)

l. Student engagement activities including the New Product Design project and (European) Ecotrophelia competition (§64)

m. Support provided to students in preparing for the competitive world of placement applications (§65)

CONCLUSIONS ON QUALITY AND STANDARDS

89. The Panel has concluded that the quality and standards of the programmes reviewed are appropriate.

CONCLUSIONS ON NEW DEGREE PROGRAMME

90. The Panel received no submissions with regards to new programme proposals.

RECOMMENDATIONS

91. The Panel recommends to the University Programmes Board that the following degree programmes taught by the Department of Food and Nutritional Sciences are re-approved to run for a further six years:

- BSc Food Science
- BSc Food Science with Industrial training
- BSc Food Science with Business
- BSc Food Science with Business with Industrial Training
- BSc Food Technology with Bioprocessing
- BSc Food Technology with Bioprocessing with Industrial Training
- BSc Nutrition and Food Science
- BSc Nutrition and Food Science with Industry
- BSc Nutrition with Food Consumer Sciences
- BSc Nutrition with Food Consumer Sciences and Industry
- MSc Food Science
- MSc Food Technology: Quality Assurance
- MSc Nutrition and Food Science
- MSc Sustainable Food Quality for Health)
- PGCert Sustainable Food Quality for Health
- PGCert Sustainable Livestock Production
- PGDip Sustainable Food Quality for Health
- MSc Sustainable Food Quality for Health

92. The report will categorise any issues as follows, in order of priority:

- Those areas where the Review Team believes it is **necessary** for action to be taken urgently to safeguard the standard of provision;
- Those areas where it is **advisable** that the issues be addressed as soon as possible.
- Those areas where it is **desirable** that the issue be addressed over a longer time span.

93.   The Panel has made the following recommendations which must be addressed as a condition of re-approval:

The Panel makes the following recommendations to the Department:

Necessary

a.   Ensure that feedback is provided on the final year projects so as students have the opportunity to learn from this piece of work. (§29)

b.   Embed peer review into Departmental quality management and enhancement processes as a supportive mechanism to enhance practice and share good teaching practice. §77)

Advisable

c.   Ensure that any changes to course content, delivery and assessment are made in line with University policy and procedures (including appropriate timescales and consultation with students) and clearly communicated to all stakeholders. (§15)

d.   Review the assessment regime in order to ensure fairness in:

   i.   The number of assessments;

   ii.   The timing of deadlines; and

   iii.   Weighting between coursework and exams. (§31)

e.   Address ongoing issues around the timeliness of feedback and take steps to ensure consistency in the quality of feedback across all modules. (§33)

f.   Revisit the marking scheme for the project module in order to ensure appropriate grade allocation. (§48)

g.   Investigate ways in which international and returning students might be further integrated with current cohorts (for example, by extending the STAR mentoring scheme to cover 2+2 and 3+1 students). (§49)

h.   Identify ways to enhance student engagement with, and participation in, relevant committee (particularly international students). (§55)

i.   Review and revisit the workings of the Industry Advisory Board in order to strengthen engagement and to ensure that all parties are receiving best benefit from it (for example, by using the IAB to help inform the re-design of curricula). (§61)

j.   Find ways in which to strengthen the employability offer for final year students. (§70)

k.   Explore additional means to ensure that the student body is informed of actions taken as a result of module and programme evaluations (thus closing the feedback loop). (§79)

l.   Ensure that some form of informal, light-touch mid-module evaluation is undertaken for all modules on an annual basis. (§80)

m.   Review current practice and introduce some form of formal programme evaluation for all programmes on an annual basis. (§81)

Desirable

n.   Embark upon a meaningful and strategic Curriculum Review and develop plans for:

    i.   The mapping of programme learning outcomes across modules (with learning outcomes reviewed across modules and revised, as needed, using Bloom's taxonomy) and module level outcomes; (§12)

    ii.   The full engagement of students in the Review; and (§43)

    iii.   Assessment mapping (with feedback also mapped as part of the Review). (§44)

o.   Review the provision and availability of optional modules for undergraduate students. (§40)

p.   Explore the possibility of providing additional independent study space for students. (§54)

q.   Explore ways in which to better embed the Peer-Assisted Learning initiative. (§59)

r.   Find ways to support the Nutritional Sciences agenda through developing networks with Public Health Bodies, Clinical Research Groups and academic researchers. (§62)

s.   Identify opportunities for international students to engage in work experience with industry, public bodies or through research opportunities. (§67)

t.   Make sure that more detailed qualitative placement reports and feedback are available to students. (§68)

u.   Support those students who do not take up placement opportunities in developing their employability (e.g. through signposting the THRIVE mentoring scheme or RED Award). (§69)

v.   Improve access to factory visits in order to strengthen student awareness and understanding of industrial practices, especially for those students who do not take up a placement opportunity. (§72)

w.   Support Module Convenors to fully complete Module Convenor Reports and to make those reports (or a version of them) available to students as part of their work to close the feedback loop. (§82)

The Panel makes the following recommendations to the University:

Advisable

x.   Assess the competitive advantage of the Department through addressing issues around facilities and capabilities in light of competitor institutions. (§75)