

BSc Food Technology with Bio-processing with Industrial Training UCAS code: D621
For students entering Part 1 in 2011/2

Awarding Institution:	University of Reading
Teaching Institution:	University of Reading
Relevant QAA subject Benchmarking group(s):	Agriculture, Forestry, Agricultural Sciences, Food Sciences and Consumer Sciences
Faculty:	Life Sciences Faculty
Programme length:	4 years
Date of specification:	12/May/2014
Programme Director:	Dr Alistair Grandison
Programme Advisor:	
Board of Studies:	Food and Nutritional Sciences
Accreditation:	Not applicable

Summary of programme aims

The programme aims to provide a degree-level education from which graduates can enter a career in the food industry (or employment in other sectors of the food chain, or related technical sectors) as technologists and to develop their capacity to undertake research into problems relating to the production and marketing of safe and quality foods. The testable learning outcomes will be the ability to:

- Integrate the scientific disciplines relevant to food
- Apply and communicate technological knowledge to meet the needs of industry and the consumer for the production and marketing of safe and quality foods.

The Food Technology with Bio-processing programme aims to:

- Provide a programme of education which can enable its graduates to enter a career in the food industry as technologists capable of ensuring the production and marketing of safe and quality foods
- Provide a broadly based technological education whose graduates can also enter into employment in other sectors of the food chain, or related technical sectors, where they can apply their technological skills
- Allow individuals to develop their capacity to undertake research into problems relating to the production and marketing of safe and quality foods
- Provide a course containing integrated periods of industrial training allowing students to experience and apply the skills developed during the course
- Provide undergraduates with opportunities to develop their inter-personal and communication skills
- Enable graduates to meet the entry requirements of the Institute of Food Science and Technology (IFST)

Transferable skills

During the course of their studies at Reading, all students will be expected to enhance their academic and personal transferable skills. In following this programme, students will have had the opportunity to develop such skills, in particular relating to communication (both written and oral), interpersonal skills, learning skills, numeracy, self-management, use of information technology and problem-solving and will have been encouraged to further develop and enhance the full set of skills through a variety of opportunities available outside their curriculum.

Students will also have had the opportunity to enhance their skills relating to career management, and team working.

Programme content

The profile which follows states which modules must be taken (the core Food Technology with Bio-processing modules) and, for Part 2 and 3, lists of modules from which the student must make a selection (the optional modules). For the optional modules, students are free to select any module that is not a compulsory module so as to make 120 credits in each Part.

Part 1 (three terms)

Compulsory modules

<i>Mod Code</i>	<i>Module Title</i>	<i>Credits</i>	<i>Level</i>
BI1BA1	The Living Cell	10	4
BI1BB2	Biochemistry and Metabolism	10	4
CH1FC3	Molecular Studies for the Life Sciences	10	4
FB1EQ1	Quantitative Skills for Life Sciences	20	4

FB1MB1	Introduction to Food Microbiology	10	4
FB2AG1	Farm to Fork: Primary production of food commodities	10	5
BI1S1	Introductory Microbiology	10	4
FB1EP1	Physical Aspects of Food Systems A	10	4
FB1FST	Key Skills for Food Science and Technologists	20	4

Plus 10 credits from the following modules (choice dependent on qualifications):

CH1FC1	Fundamental Concepts in Chemistry 1	10	4
FB1PH1	Public Health Nutrition 1	10	4

Part 2 (three terms)

Compulsory modules

<i>Code</i>	<i>Module title</i>	<i>Credits</i>	<i>Level</i>
FB2CCP	Composition and Properties of Food	20	5
FB2EFP	Food Processing	20	5
FB2EPR	Process Engineering Principles	20	5
FB2MF1	Microbiology of Food Spoilage and Preservation	10	5
FB2MF2	Microbiological Hazards in Foods	10	5
FB2GPD	Basic Food Product Development	10	5
FB2BBE	Biochemistry and Enzymology	10	5
FB3PFAXXX	Research Methods for Food and Nutritional Sciences	0	6
FB2PYA	Industrial Training Preparation	0	5

Students entering directly into Part 2 from Henan University are required to take:

FB2CAL	English for Science	20	5
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Optional modules (20 credits) (for students not from Henan):

AP1EM1	Introduction to Marketing	10	4
AP1SB1	Introduction to Management	10	4
MM270	Practice of Entrepreneurship	20	4
LA1XX1	Institution Wide Language Programme	20	4
PY1PC	Perception	10	4
FB2FC1	Food Choice and Regulation	10	5

Students can select other suitably weighted modules from other Schools, timetable permitting.

Year abroad/Year away/Additional year (three terms)

Compulsory modules

<i>Code</i>	<i>Module title</i>	<i>Credits</i>	<i>Level</i>
FB2PY	Industrial Training	120	5

Industrial Training

Students are required to undertake a period of industrial training between Parts 2 and 3. The placement takes 44 weeks and may be split into two 22 week periods at two different establishments. Performance in the training will be assessed. In addition, students are encouraged to seek relevant industrial training during the Summer vacation between Parts 1 and 2.

Part 3 (three terms)

Compulsory modules

<i>Code</i>	<i>Module title</i>	<i>Credits</i>	<i>Level</i>
FB2N1A	Fundamentals of Human Nutrition	10	5
FB3GPD	Food Product Development	10	6
FB3GSE	Sensory Evaluation	10	6
FB3PFA	Research Methods for Food and Nutritional Sciences	10	6
FB3RP**	Research Project	30	6
FB3QAS	Food Quality Assurance and Safety	20	6
FB3IFP	Integrated Food Processing	10	6

**Students may take FB3PRE Science and Food Technology Education Project instead of

Optional modules (20 credits):

FB3GSA	Consumer Attitudes to Food Quality	10	6
LA1XX1	Institution Wide Language Programme	20	6
FB3EB2	Bioprocess Systems (Economic Manufacturing)	10	6
FB3N3	Bioavailability Diet and Gut Health	10	6
FB3CF1	Special Topics in Food and Toxicology	10	6
FB3CF2	Selected Topics in Food Chemistry	10	6

Students can select other suitably weighted modules from other Schools, timetable permitting.

Progression requirements

- To gain a threshold performance at Part 1 and qualify for the CertHE a student shall normally be required to achieve an overall average of 40% over 120 credits taken in Part 1, where all the credits are at level 4 or above, and a mark of at least 30% in individual modules amounting to not less than 100 credits. In order to progress from Part 1 to Part 2, a student shall normally be required to achieve a threshold performance at Part 1, and have no module mark below 30% in CH1FC3, FB1EP1, FB1EQ1 and FB1MB1.
- To gain a threshold performance at Part 2 and qualify for the DipHE a student shall normally be required to achieve an overall average of 40% over 120 credits taken in Part 2, and a mark of at least 30% in individual modules amounting to not less than 100 credits. In order to progress from Part 2 to Part 3, a student shall normally be required to achieve a threshold performance at Part 2.
- To pass the Industrial Training Year students must achieve a mark of 40%. Students who fail the Industrial Training Year will be required to transfer to the 3 year Programme.
- To obtain the degree at the end of Part 3, students must obtain an overall average of 40%. In order to achieve a BSc Honours degree students are required to achieve a mark of at least 30% in the final year project modules FB3RP and FB3PFA combined. Students who fail to achieve this mark will qualify for a PASS degree if they meet the other criteria.

Assessment and classification

The University's honours classification scheme is:

<i>Mark</i>	<i>Interpretation</i>
70% - 100%	First class
60% - 69%	Upper Second class
50% - 59%	Lower Second class
40% - 49%	Third class

35% - 39%	Below Honours Standard
0% - 34%	Fail

For the University-wide framework for classification, which includes details of the classification method, please see: www.reading.ac.uk/internal/exams/Policies/exa-class.aspx.

The weighting of the Parts/Years in the calculation of the degree classification is

Four-year programmes, including placement year:

Part 2 23%
 Placement 10%
 Part 3 67%

Teaching is organised into modules - each module will consist of lectures, practicals, or a combination of these. Students are assessed on each module, usually by a formal examination, although modules consisting only of practicals (or similar coursework) may not have a formal examination. All coursework is assessed and the assessment contributes towards the modular marks. The Part 3 project is an individual study requiring the submission of formal report for assessment. The industrial training is assessed by using formal reports from the employer and the student's tutor and the assessment of a report submitted by the student.

Admission requirements

Entrants to this programme are normally required to have obtained:

GCSE: Grade C or better in Mathematics and English in GCSE; and achieved Advanced Level (AS and A2):

- A core science at A2 level with either a core or related science subject at AS level (where 'Core Science' is defined as: mathematics, chemistry, physics and biology, and 'Related Science' is defined as: food technology, environmental science and human biology)
- A UCAS Tariff of 300 with 100 obtained in at least one core science

International Baccalaureate: 30 points

Irish Leaving Certificate: BBBBC

Admissions Tutor: Dr C Wagstaff

Support for students and their learning

University support for students and their learning falls into two categories. Learning support is provided by a wide array of services across the University, including: the University Library, the Careers, Placement and Experience Centre (CPEC), In-sessional English Support Programme, the Study Advice and Mathematics Support Centre teams, IT Services and the Student Access to Independent Learning (S@il) computer-based teaching and learning facilities. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme. Student guidance and welfare support is provided by Personal Tutors, School Senior Tutors, the Students' Union, the Medical Practice and advisers in the Student Services Centre. The Student Services Centre is housed in the Carrington Building and offers advice on accommodation, careers, disability, finance, and wellbeing, academic issues (eg problems with module selection) and exam related queries. Students can get key information and guidance from the team of Helpdesk Advisers, or make an appointment with a specialist adviser; Student Services also offer drop-in sessions and runs workshops and seminars on a range of topics. For more information see www.reading.ac.uk/student

Career prospects

The food industry has a great demand for qualified food technology graduates for a wide range of activities. Graduates from this programme gain employment in quality assurance (monitoring of compliance with legal requirements and the establishment of food safety systems meeting national and international standards) or in product development (developing new products or introducing new ingredients into existing products). Many food retailers employ graduates to ensure the safety and quality of their own-label products and to monitor the goods received from their suppliers. Other opportunities arise in companies supplying the food industry with ingredients, equipment and packaging and in specialist food research laboratories. In addition to the career opportunities in the biotechnological industries, the academic training our graduates receive equips them for positions in other industries, commerce and Government service.

Opportunities for study abroad or for placements

There are no formal arrangements for study abroad. Industrial training attachments have sometimes been found in other countries including the United States of America and Australia.

Programme Outcomes

Knowledge and Understanding

A. Knowledge and understanding of:

1. Food composition in the context of food quality and safety.
2. Food processing and food engineering.
3. The technical and economic criteria used to choose the necessary equipment for food processing.
4. Microbiological aspects of food quality and safety.

Teaching/learning methods and strategies

Lectures and practical classes provide the basic knowledge. A variety of coursework gives opportunities for extending knowledge and techniques. Individual and group projects reinforce techniques and give experience of practical applications. The industrial training year provides a major opportunity for most students to enhance their knowledge of some or all of topics 1 - 4.

Assessment

Most knowledge is tested through a combination of coursework and unseen formal examinations. Project work, reports, oral presentations and computer-based exercises also contribute to the final assessment. Where appropriate, the industrial training assessment is also used.

Skills and other attributes

B. Intellectual skills - *able to*:

1. Analyse and solve problems
2. Critically evaluate scientific literature
3. Assess problems and design experiments to test hypotheses
4. Apply knowledge to new problems
5. Plan, conduct and report on an individual research project

Teaching/learning methods and strategies

Topics 1 and 2 are essential components of the programme and are embedded in many parts of the programme. Topics 3 and 4 are introduced in Part 2 course-work. Topics 3, 4 and 5 are fully developed during the individual research project in Part 3 of the programme. The industrial training year provides a major opportunity for most students to enhance their skills relating to some or all of topics 1 - 5.

Assessment

Coursework is structured to assess topics 1, 2, 3 and 4. Topics 3, 4 and 5 are assessed as components of the individual research project. Where appropriate, the industrial training assessment is also used.

C. Practical skills - *able to*:

1. Quantitatively evaluate the performance of food processing equipment
2. Perform chemical and physical laboratory tests to assess the quality and safety of foods.
3. Develop and perform microbiological and sensory laboratory tests to assess the quality and safety of foods.
4. Participate in, and help develop, food research and food product development programmes.
5. Operate quality assurance procedures in food

Teaching/learning methods and strategies

Topics 1, 2 and 3 are introduced by lectures but are developed fully by appropriate laboratory exercises during all Parts of the programme. Topics 4, 5 and 6 are developed during lectures, exercises and group work in Part 3 of the programme. The industrial training year provides a major opportunity for most students to enhance their skills relating to some or all of topics 1 - 6.

Assessment

processing.

6. Participate in the assessment of a food production process by the use of techniques such as Hazard Analysis and Critical Control Points (HACCP) so as to ensure the production of safe and quality foods.

D. Transferable skills - *able to:*

1. Work as an individual, in a small group or as part of a larger team.
2. Prepare reports and make presentations that effectively present the results of investigations carried out.
3. Critically assess and present data using appropriate statistical techniques.
4. Make effective use of information technology.
5. Consider and manage career choice.

All topics will be assessed by coursework. Where appropriate, the industrial training assessment is also used.

Teaching/learning methods and strategies

The development of transferable skills is integrated into many parts of the programme. Students are required to work both as individuals and as part of groups. Career skills (topic 5) are introduced in a Part 1 module and reinforced by the industrial training year. The industrial training year provides a major opportunity for most students to enhance their skills relating to some or all of topics 1 - 5.

Assessment

All topics are assessed both by coursework within the modules and in formal examinations. Where appropriate, the industrial training assessment is also used.

Please note - This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the module description and in the programme handbook. The University reserves the right to modify this specification in unforeseen circumstances, or where the process of academic development and feedback from students, quality assurance process or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.