

Food and nutritional sciences

Collecting policy

User profile

This collection statement covers provision for the Department of Food and Nutritional Sciences within the School of Chemistry, Food and Pharmacy.

There are a number of interdisciplinary areas shared with other subjects, most notably agriculture, pharmacy, psychology, and biological sciences.

Research interests[#]

The Department of Food and Nutritional Sciences has a strong research profile. It achieved an excellent result in the 2014 Research Excellence Framework exercise, with **71%** of outputs ranked internationally excellent and **85%** of research having an outstanding impact. Food and Nutritional Sciences will form a research division within the University's revised academic structure in 2015.

The Department's research strategy is focused on improving the quality of food and nutrition to deliver health benefits for society. There are four main areas of research strength and expertise.

1. Food processing for food quality, health and environment

Research in this area aims to identify the impact of processing on the physical properties and nutritional quality of foods, as well as to develop innovative processing approaches for the production of functional food ingredients from sustainable bioresources.

Current research in this area includes investigating:

- the underpinning scientific links between milk quality and foam formation of milk based products;
- the impact of processing on the microstructure and bioactivity of plant, dairy and cereal based foods;
- the effect of thermal processing on flavour formation;
- methods to improve the palatability of foods for elderly people;
- approaches for the production of functional ingredients, such as bioactive peptides and prebiotic oligosaccharides;

- valorization of food processing waste and by-products using industrial biotechnology (e.g. microbial fermentation and enzymes) and green processing technologies (e.g. supercritical fluid extraction).

2. Nutrition for prevention of metabolic and cardiovascular diseases

This encompasses epidemiological, human intervention and cellular and molecular approaches to examine the impact of nutrition on metabolic and cardiovascular disease risk.

Current research in this area includes:

- Using an array of *in vivo* techniques for assessment of vascular function.
- Real time visualisation of processes such as thrombosis.
- Characterizing the effects of dietary fats, fish oils, fruits and vegetables, flavonoid-rich food products, coffee and chocolate on vascular function, insulin resistance, lipid metabolism and thrombosis.
- Nutrigenetic and nutrigenomic techniques are applied to understand the influence of genetic polymorphisms on chronic disease outcomes in response to dietary factors.
- Cellular and molecular work examines underlying mechanisms for the effects of dietary components on cell signalling, lipid metabolism, gene expression, diabetes and cardiovascular risk, and on pathways in vascular, hepatic, inflammatory & immune cells.

3. New targets for improving cognitive function through diet

This research examines the ability of diets and specific dietary components, particularly phytochemicals, to modulate signalling pathways pivotal in promoting blood flow in the brain and cardiovascular system, to protect against neurotoxins, prevent neuroinflammation and influence memory, learning and neuro-cognitive performance.

This area is supported by extensive collaboration with the Department of Psychology and Centre for Integrative Neuroscience and Neurodynamics (CINN).

4. Novel ingredients for improved gut health and immunity

Researchers in this area conduct research on interactions between dietary components, gut function and the immune system. It includes investigations into combining dietary interventions and metabonomic analysis with gene functionality of host microbial populations, immunity and associated health-related responses of the host.

Current research in this area focuses on exploring the use of probiotics and prebiotics for improved gut health. This combines product development, *in vitro* assessments of the potential for dietary components to influence gut microbiota composition using gut models, and human studies.

Generating novel oligosaccharides with multi-functional prebiotic activity, developing techniques to encapsulate probiotics to allow targeted delivery to the lower intestine, characterised microbial physiology and pathogenesis related to food safety, and examined the ability of pre- and probiotics to counteract infection by gastrointestinal pathogens.

Human studies have examined the effects of pre- and probiotics on health outcomes, which include the microbiota composition (using nonculture-based techniques), cardiovascular risk markers, NMR-based metabonomic profiles, genotoxicity and detailed immunological phenotype and function (using multiparameter flow cytometry). These studies have covered a range of conditions (e.g. Ulcerative Colitis) and sections of the population (e.g., older people).

Information derived from the research brochure *Department of Food & Nutritional Sciences: improving the quality of food and nutrition to deliver health benefits for society* (2015)

Dimensions of teaching and learning

Taught student numbers have increased by around a quarter since the last policy review, totalling around 280. The number of research postgraduates has stabilised at around 70.

The Department is currently restructuring their undergraduate degree programmes into a more thematic approach. This has resulted in changes to content and timing of modules, with some modules being removed and new ones added. Allied to this the Department is also reviewing information literacy skills development and embedding suitable training and development in their degree programmes.

Current undergraduate and postgraduate courses are detailed on the department website: www.reading.ac.uk/food

Current holdings

Most materials fall into the 664 section of the classification but the interdisciplinary nature of this subject means that they will also be found at a variety of numbers in the Sciences and Social Sciences. For more detail see the Food and nutritional sciences subject guide libguides.reading.ac.uk/food.

Books and e-books

The Library has large collections of books in food technology and nutrition. Related materials in dairy science and biotechnology are also collected.

E-books versions of reading list texts are purchased, where available, to supplement provision of printed copies. The Course Collection (6-hour loan) is not popular with food students, so this is the last resort for meeting demand.

Periodicals and e-journals

Recent Library subscriptions to large journal packages, especially that offered by Wiley, have resulted in many more food-related titles becoming available online. This is in addition to a number of new discipline-specific subscriptions funded by the increase in the Library materials budget.

Reference materials - print and electronic

A range of major encyclopedias, standards and methods is held in the Library's reference collection, although there haven't been any significant, recent additions. This is in addition to online reference works such as Credo Reference, Oxford Reference and Encyclopedia Britannica.

The British Standards Online database gives full-text access to British standards including ISO standards adopted by BSO.

Bibliographic databases

There are many electronic databases relevant to Food and Nutritional Sciences: these are listed at libguides.reading.ac.uk/food. Due to the interdisciplinary nature of the studies taking place in the department a diverse range of sources can be useful for tracking down relevant literature, e.g. PsycINFO for the psychological aspects of food choice.

Key databases include:

- FSTA (Food Science and Technology Abstracts)

- Web of Science
- MEDLINE/PubMed (especially for biotechnology, bioengineering, nutrition and health-related topics)
- ScienceDirect
- SciFinder is also intensively used by the Flavour Centre

The Department currently contributes to the cost of the FSTA and SciFinder subscriptions.

Strengths, exclusions and areas for development

The Library collection is strong in the areas which are taught, and these largely reflect the research interests of academic staff. All the key areas of food and nutritional sciences are collected.

Areas of particular strength include:

- Food analysis
- Food chemistry
- Food microbiology
- Nutrition
- Processing technologies
- Quality assurance

Our holdings relating to metabolomics/metagenomics and sports nutrition have been strengthened as a result of new teaching and research in these areas.

Subject areas identified for development by academic staff include:

- Biochemistry/Metabolism of prokaryotes
- Epigenetics
- Immunology and nutrition
- Next Generation Sequencing technologies
- Systems biology

Donations relevant to the areas of teaching and research are accepted, but only if current.

Collecting level

The collection supports the teaching requirements of the School. Final year project students are strongly recommended to use all possible sources of information.

The School is responsible for selecting new acquisitions to support research. Given the multidisciplinary nature of food and nutritional sciences, the sub-collections tend to have a mixture of teaching-related and more advanced texts which provide support for research.

Alternative access

Inter-library loans (ILLs)

Use of the ILL service has reduced by around half since the last collecting policy as a result of the increased number of journal titles available online via subscriptions to large publisher packages. However, the interdisciplinary nature of the subject, and the absence of a medical

school at the University, means that ILLs are still essential to support research in the nutrition and health-related specialisms.

Students working on their dissertations are expected to make use of the Inter-Library Loans service to get articles on topics not covered by the Library's collections.

However, the ILL service is not popular with staff or students due to the barriers presented by paper-based requests (for students) and technical issues due to the mode of online delivery used by the British Library.

Use of other libraries

Staff and students in the School do not tend to use other libraries. The Department has two subscriptions to specialist organisations:

- Campden BRI
- International Dairy Federation, via the UK Dairy Association

Students on placement can access other HE libraries via the SCONUL Access scheme.

Selection, acquisition and stock editing

Selection & acquisition

See the General Collection Development Policy Statement for general principles.

The Department's objectives in selecting materials are: to build a collection providing readers with an insight into the (current state of) knowledge within the various areas contributing to the study of food and nutrition and associated activities. The book collection provides the opportunity to understand the underlying principles of the constituent disciplines so that further, more detailed, study can be undertaken using research journals. This principle will apply at all levels but more specifically at postgraduate level.

Books and e-books will be purchased to support the teaching directly, with multiple holdings of key texts plus the wider holding of more specialised, research-level books. In general the Department agrees with the general Library guidelines on number of copies of one copy of a key text per ten students, but may purchase fewer where an e-book is available. Print is still the preferred medium for books, although this is gradually changing. Current policy is to purchase at least one print copy of all titles. E-book versions of reading list texts are purchased, where available, to supplement provision of printed copies.

The recent uplift in Library budgets has enabled the Department to subscribe to additional journal titles to support new teaching and research, as well as maintaining a healthy book fund of around £12,000. However, as most books in this subject are priced between £100-£150 pounds this only buys a relatively small number of titles. The Library's Course Support Fund is also used to purchase recommended reading for taught courses.

The Department currently has a significant number of Chinese students entering the degree programmes in the 2nd or 3rd year. This puts an additional strain on Library resources as these students generally need longer to assimilate information contained in book, making Course Collection loan periods less suitable for them. Where possible at least one longer loan copy print copy should be available in addition to a copy in the Course Collection and e-book versions of key texts will be purchased (where available) to support these students. Food-related dictionaries are also popular with these students to help them understand key concepts.

The Department has moved into distance learning with the formation of the Advanced Training Partnership (ATP) offering industry-focused masters and doctorate level training to people working in industry. This has necessitated the purchase of more e-books.

Stock editing

Multiple copies of old editions are weeded without consultation. Older/little used monographs are selected for relegation to closed access collections by the Liaison Librarian without consultation (access can actually be improved in such cases by ensuring the item is catalogued on the catalogue).

Books related to areas of particular strengths, nutrition-related material, and food processing books (which can remain relevant for decades) will not normally be withdrawn (but will be relegated if little used).

Pre-1990s periodicals have been relegated to closed access to make space for other collections on the subject floors. Incomplete runs of older periodicals in food have been withdrawn where the titles are available from the British Library.

Policy written by Jackie Skinner, Food and Nutritional Sciences Liaison Librarian, August 2015