



**QUEEN'S  
UNIVERSITY  
BELFAST**

SCHOOL OF  
BIOLOGICAL  
SCIENCES

# SAFEGUARDING GLOBAL FOOD SECURITY AND FOOD INTEGRITY

MSc  
**ADVANCED FOOD SAFETY**

## Entrance Requirements

Normally a 2.2 Honours degree or above in a relevant area of science or equivalent qualification acceptable to the University. Applicants with qualifications below 2.2 Honours degree standard (or equivalent qualification acceptable to the University) will be considered on a case-by-case basis, if they can demonstrate appropriate experience, acceptable to the School.

## International Qualifications

For information on international qualification equivalents, please see [go.qub.ac.uk/YourCountry](http://go.qub.ac.uk/YourCountry)

## Additional Information for International Students

International students wishing to apply to Queen's University Belfast (and for whom English is not their first language), must be able to demonstrate their proficiency in English in order to benefit fully from their course of study or research. Non-EEA nationals must also satisfy UK Visas and Immigration (UKVI) immigration requirements for English language for visa purposes.

Evidence of an IELTS\* score of 6.0, with not less than 5.5 in any component, or an equivalent qualification acceptable to the University is required.

\*Taken within the last 2 years.

For more information on English Language requirements for EEA and non-EEA nationals see: [go.qub.ac.uk/EnglishLanguageReqs](http://go.qub.ac.uk/EnglishLanguageReqs)

If you need to improve your English language skills before your study, our partner INTO Queen's University Belfast offers a range of English language courses.

## Duration

1 year full-time

## Teaching Times

We provide a range of learning experiences which enable our students to engage with subject experts, develop attributes and perspectives that will equip them for life and work in a global society and make use of innovative technologies and a world-class library that enhances their development as independent, lifelong learners.

Across a combination of morning and afternoon classes, examples of the opportunities provided for learning on this course are lectures, practical laboratory experiences, self-directed study and supervised research work to enhance employability.

## Assessment

Continuous assessment of modules based solely on submitted work related to private individual study.

## Contact Us

[askmhls@qub.ac.uk](mailto:askmhls@qub.ac.uk)

## Find out more

[www.qub.ac.uk](http://www.qub.ac.uk)

# MSc ADVANCED FOOD SAFETY

## Overview

The world's food supply is reducing, its production is under increasing pressure, and so safety issues are more likely to arise. The MSc in Advanced Food Safety is tailored towards students who aim to work within the agri-food industry and related sectors, offering a unique qualification in the fields of food safety and food integrity.

Taught by world leading research staff at the Institute for Global Food Security (IGFS), the programme focuses on new and emerging issues threatening our food security. Concentrating on new developments in analytical approaches used to monitor and regulate food safety, authenticity and security, you will gain practical experience in the use of conventional and emerging state of the art bioanalytical technologies.

## Content

Core topics covered will include food authenticity and traceability; chemical/biological hazards in animal feed and human food; and current and emerging analytical technologies to prevent food safety and food fraud incidents. This content will be delivered through a number of defined modules fully assessed by continuous assessment:

### Advanced Food Bioanalysis

Students will gain insight into the principles behind a range of analytical tools used in food analysis through lab-based practicals.

### Agri-food Traceability and Fraud

Covers the various forms of food fraud which are prevalent at a global level. Students also assess potential impacts which incidents related to intentional and unintentional compromising of food chain integrity have on consumer confidence and food company survival.

### Bio-entrepreneurship and Advanced Skills

Designed to provide realistic challenges that confront biologists, biotechnologists and food scientists during their day-to-day activities throughout their career.

### Food Safety, Health and Disease

Students will explore various biological and chemical agents potentially present in animal feeds and human foods and examination of associated links of their exposure to human health defects and disease progression.

### Foundations for Research in the Biosciences

Introduces students to the process of designing and planning a research project including all associated aspects such as: formulating hypothesis; designing experiments; budgeting; and assessing the potential impact of research.

### Literature Review

The aim of this module is to establish the knowledge and skills required to develop, plan and undertake a substantial piece of self-directed critical scientific writing/project work within the field of food safety.

## Research Project (triple module)

This programme culminates in a three-month, full-time, intensive research project in a laboratory at Queen's and is delivered and supervised by research-active IGFS staff.

Available facilities and capabilities for students include:

- GC, HPLC and UPLC separation platforms
- ICP, IR, qToF and QqQ mass spectrometers
- Microbiological research facilities
- Antibody production and biomolecule binder development
- Cell culture suite and bioanalytical assay detection systems
- NMR, NIR and Raman spectrometers
- Proteomic and metabolomic profiling tools
- RT-PCR, transcriptomic profiling, Next-generation sequencing
- Multiplex biosensor platforms and LFD development

## Why Queen's

A major component of this degree will involve the completion of a laboratory-based, food safety related research project supervised by a research-active member of academic staff within the Institute, offering the opportunity to gain practical experience in the use of conventional and emerging state-of-the-art bioanalytical technology used within the field of food security and food safety.

## Careers

The IGFS has strong links with industry and collaborates with a wide range of companies and government bodies. With the ever-increasing focus on the safety and security of animal feed and human food supply and provision, excellent opportunities exist for graduates of the programme.

Past graduates have gone on to employment in:

- Local and international agri-food industry sectors
- Diagnostic service provision companies
- Research and regulatory analyst laboratories
- Further research, e.g. PhD-level study