

The background of the poster is a photograph of a cornfield with green plants growing in brown soil. Overlaid on the image are several white circular icons connected by dotted lines, representing various agricultural and environmental factors: a sun, a hand holding a shovel, a magnifying glass over a plant, a bug, and a circle containing the letters N, K, and P. In the top right corner, there is a large white circular logo with a stylized 'C' shape.

Cranfield
Environment
and Agrifood

Postgraduate
master's courses in

Agrifood

Academic year 2024/25 entry

Applied Bioinformatics MSc
Food Systems and Management MSc
Future Food Sustainability MSc

Cranfield University

We are the UK's only specialist postgraduate university in technology and management, with longstanding relationships with some of the most prestigious global companies. Our close collaboration with industry, and passion for the areas we operate in, will help your career.

Specialist postgraduate

A research-focused professional community

88%

of our research is world-leading or internationally excellent

Research Excellence Framework (REF) 2021

Over £150 million

of investment in new facilities over the past five years

Top 30
in the world

for Engineering – Mechanical, Aeronautical and Manufacturing
QS World University Rankings by subject, 2023

A professional network of **75,000+** alumni, from 177 countries

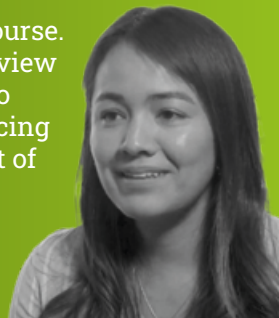
5,000+ postgraduate students from **100+ countries**

Six-time winner
Of the prestigious Queen's Anniversary Prize

As we are postgraduate only, we are not listed in league tables that help compare undergraduate universities, such as *The Times World Rankings* and *The Complete University Guide*.

"I would say, overall, I really like the content of the course. I think it is very unique and gives you a holistic overview of the food industry. I think in each module you get to know what the challenges are that the industry is facing right now and how you can actually be an active part of improving the industry."

Magdalena Marin Saavedra,
(Food Systems and Management MSc, 2022)



Reasons to study **agrifood** with us

1 Research with impact

All courses are developed based on our current research and are fully aligned with the United Nations Sustainable Development Goals (SDGs). During your group and individual research projects you will be working on real-life challenges and developing solutions for a more sustainable and resilient food system.

2 Learning from the best

Our agrifood courses are taught by leading academics alongside industry practitioners, ensuring that you have access to the most up-to-date techniques and innovations. Two of our three MScs are delivered in collaboration with our internationally-recognised Cranfield School of Management.



3 Industry partners

As a specialist postgraduate university, we have excellent links with the agrifood and bioinformatics industry giving you the opportunity to collaborate with both large and medium-sized companies. During group and individual projects students have regular contact and are supported by external organisations including Unilever, PepsiCo, McDonald's, Waitrose and NGOs giving you direct access and insight into real companies and real working challenges, helping to solve major global challenges in the agri-tech industry.

4 Industry-relevant courses

An industrial advisory panel reviews our course material on a regular basis to ensure that content remains relevant to industry needs.

5 Outstanding facilities

Our exceptional on-site facilities include our soil management facility, a purpose-built, state-of-the-art resource for the advancement of soil dynamics, soil management and soil conservation techniques. We also have fully-equipped laboratories for molecular biology, analytical biochemistry and microbiology, and a new unique phenotyping platform for investigating plant, soil and water interactions. Our unique postharvest capabilities allow us to undertake cutting-edge research on reducing food waste and developing novel packaging solutions. Our new Agri-informatics facility provides the UK with a centre of excellence in data science related to precision agriculture. In addition to this our bioinformatics lab is equipped with high-performance computing facilities.

6 Employment prospects

Studying at Cranfield helps to unlock your potential, develops your talent and greatly enhances your employability. Employers across the sector recognise that Cranfield graduates leave with the skills and expertise ready to meet today's challenges. Many of our graduates have gone on to develop a successful career in leading global companies, often receiving a relevant job offer before finishing the course and allowing them to make a real impact in the sector. See page 7 for examples.



Image: CHAP plant phenotyping and soil health facility.

Agrifood courses

Food quality, safety and security are major worldwide challenges and draw increasing attention from both policy makers and businesses. Cranfield's Agrifood MSc courses explore the integrated nature of our food supply chains and the ongoing need to increase their economic and environmental sustainability.

As a specialist postgraduate university, Cranfield's courses are tailored to improve your understanding at master's level of all aspects of food systems and agricultural processes. We draw on the latest technologies and informatics tools and accelerate your personal development through improvements in your learning, communication and analytical skills.

Our academics' world-leading research in this sector, combined with our collaboration with leading industry specialists will provide you with a learning experience that will prepare you for your future career.

Agrifood courses

Informatics course

Gain the computational skills and awareness needed to develop new bioinformatics tools to analyse and interpret the vast amounts of biological data now becoming available.

- Applied Bioinformatics.

Food management courses

Gain a critical appreciation of the issues concerned with the sustainable production and supply of food in the context of climate change and other challenges.

- Food Systems and Management,
- Future Food Sustainability.

"Cranfield is unique, it's a research-based university and also has close links with industry. The course has been so enriching in that it has prepared me for different challenges of the food system. Cranfield will prepare you for real life experiences and it will also expose you to different knowledge irrespective of your programme."

Olumayowa Oladipupo,
(Future Food Sustainability MSc, 2022)



Modules form 40% of the course content, with the group and individual projects making up the other 60%.

This brochure shows the compulsory modules offered in the 2023-2024 academic year, to give you an idea of course content. To keep our courses relevant and up-to-date, modules are subject to change so please check the latest information on our website. All of these courses are offered on a full or part-time basis.

Informatics course

Applied Bioinformatics

MSc

www.cranfield.ac.uk/bix

Recognised by the Biotechnology and Biological Sciences Research Council (BBSRC), this course develops advanced theoretical knowledge and computational skills. You will apply these to help solve real-life biological problems.

Compulsory modules

- Advanced Sequencing Informatics and Genome Assembly,
- Application of Bioinformatics in Epigenetics, Proteomics and Metagenomics,
- Data Integration and Interaction Networks,
- Exploratory Data Analysis and Essential Statistics Using R,
- Introduction to Bioinformatics Using Python,
- Machine Learning for Metabolomics,
- Next Generation Sequencing Informatics,
- Programming Using Java.

We also offer the Bioinformatics Master's – level apprenticeship. More information can be found at: www.cranfield.ac.uk/bixapprenticeship

Food management courses

Food Systems and Management

MSc, PgDip, PgCert

www.cranfield.ac.uk/fsm • Accredited - see page 9

A unique offering within the UK and Europe, this course examines the whole of the food chain from pre-harvest to consumer through the integration of science, technology and management.

Compulsory modules

- Agrifood Business Innovation,
- Food Chain Resilience*,
- Food Diagnostics,
- Food Safety,
- Leading Corporate Sustainability*,
- Postharvest Technology,
- Quality of Food and Beverages.

Future Food Sustainability

MSc, PgDip, PgCert

www.cranfield.ac.uk/ffs • Accredited - see page 9

Gain a detailed critical awareness of the risks, challenges and opportunities to provide a sustainable global food supply.

Compulsory modules

- Agricultural Informatics,
- Food Chain Resilience*,
- Principles of Sustainability,
- Soil Systems,
- Strategic Foresight,
- Sustainability and Environmental Assessment
- Technologies for Seeds and Crop Protection,
- Water and Sustainable Agrifood Systems.

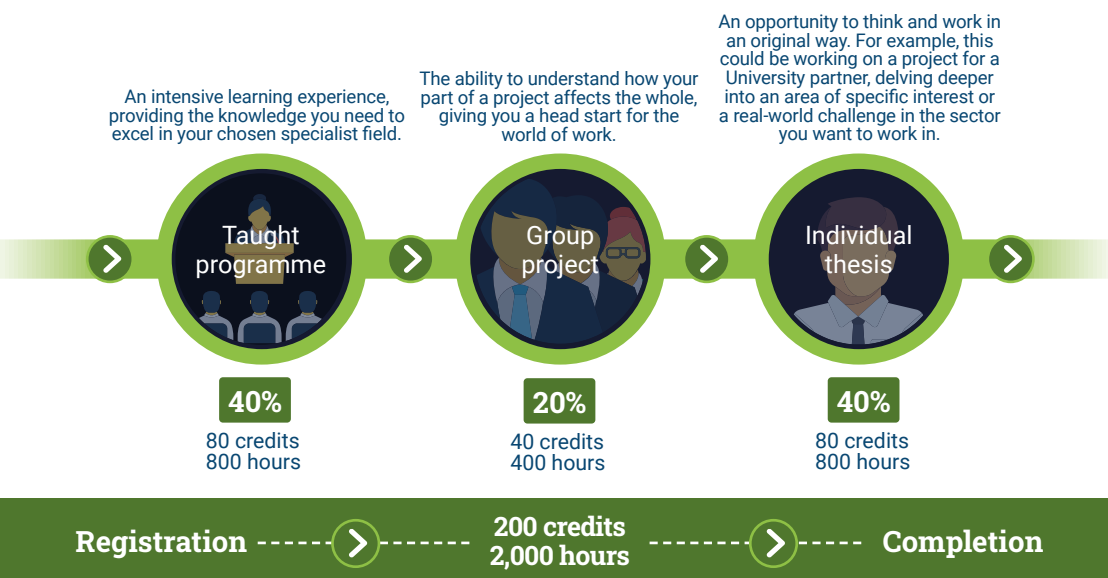


* Modules Delivered in collaboration with Cranfield School of Management.

Course structure

You will take eight compulsory modules (seven for Food Systems and Management). Each module is two weeks in duration, consisting of one week of lectures, practical work, site visits and one week for private study. You will also complete a group project and an individual research project. The courses are 60% practical-based.

This diagram illustrates the course structure of our full-time master's courses. Please check your specific course structure online for more detailed information, including the weight of each phase and part-time course structure variations.



Industry-sponsored projects

The group and individual projects that you will take as part of your course are often run in collaboration with our industrial partners.

Some recent projects include:

- Application of novel technologies to reach net-zero greenhouse gas emissions in the fresh pasteurised milk supply chain - **Deloitte**.
- Innovative packaging technologies to improve shelf-life - **It's Fresh!**
- Development of a distributed version control-enabled visualisation suite for genome assemblies.

Industry links

Cranfield has unrivalled links with industry. Our students benefit from our extensive contacts and track record of close collaboration with government and the agrifood sector.

Industrial advisory panel

Our courses are reviewed each year by a panel of industry advisors from leading companies and institutions in the sector. This ensures that the skills you acquire are up-to-date and are what employers want.

Careers

A degree from Cranfield will fast-track your career, enabling you to go further and to progress more quickly. You will also join a global alumni network providing many opportunities as you progress in your career.

Typically, our graduates go on to work in the following types of roles and organisations:

Roles:

- Bioinformatician,
- Brand Manager Assistant,
- Computational Biologist,
- Data Scientist,
- Metagenomic Bioinformatician/ Software Engineer,
- Process/Produce Technologist,
- Resilience Officers,
- Software Developer (Genomics),
- Supply Chain/Logistics Analyst,
- Sustainability Manager,
- Technical Development Manager.

Organisations:

- AMC Fresh & Natural Foods (UK) Limited,
- Deloitte,
- GlaxoSmithKline,
- G's Growers,
- Kerry Foods,
- Oxford Gene Technology
- PepsiCo,
- Rothamsted Research,
- Sanofi Aventis,
- Syngenta
- Unilever,
- Warburtons.

Our Careers Service team will work with you to identify suitable opportunities and support you throughout the job application process. www.cranfield.ac.uk/agrifoodmsc

Academic staff

You will be taught by a wide range of subject specialists from Cranfield University and industry, who draw on their research and industrial expertise to provide stimulating and relevant input to your learning experience.



Dr Sofia Kourmpetli, Senior Lecturer in Plant Sciences, Agrifood MSc Programme Director

Sofia is an expert in molecular genetics for crop improvement. Her current research focuses on understanding and improving seed quality, reducing food losses and waste and exploring the transformative potential of urban agriculture.
www.cranfield.ac.uk/skourmpetli



Dr MariCarmen Alamar, Senior Lecturer in Postharvest Biology, Food Systems and Management MSc Course Director

Carmen is an expert in postharvest biology and technology of fresh produce. Her goal is to provide a holistic approach to postharvest bioscience where agri-engineering and biology are better integrated in order to tackle postharvest challenges throughout the supply chain.
www.cranfield.ac.uk/mdalamargavidia



Dr Natalia Falagán, Senior Lecturer in Food Science and Technology, Future Food Sustainability MSc Course Director

Natalia is a global expert in food systems. Her research focuses on reducing food loss and waste by developing innovative technologies and packaging solutions to extend the shelf-life of fresh produce while maintaining nutritional quality.
www.cranfield.ac.uk/nfalagansama



Professor Fady Mohareb, Professor in Bioinformatics and Applied Bioinformatics MSc Course Director

Fady has more than 15 years of experience in the bioinformatics field. His research focuses on genome and transcriptome informatics, machine learning, data science, data visualisation and cloud technologies. Fady is leading the genomic and transcriptomic informatics work at Cranfield University on a number of national and international consortia.
www.cranfield.ac.uk/fmohareb



Professor Angel Medina Vaya, Professor in Applied Mycology and Director of Environment and Agrifood

Angel has focused his research interests on the impact that environmental stress has on the functioning of fungi (mainly mycotoxigenic species), the mechanisms used for ecophysiological tolerance, and the molecular basis of secondary metabolite production, especially mycotoxins.
www.cranfield.ac.uk/amedinavaya

Key facts and statistics

Course information



Full-time
One year



Part-time
Up to three years

See the course page for more information about part-time study.



Start date
October



MSc/PgDip/PgCert
Not all courses offer all awards, see course information pages for details of awards offered.



Fees
Please see the individual course pages on our website for full fee information and full-time or part-time options. Terms and conditions apply.

See www.cranfield.ac.uk/fees

Cohort profile*



Geographic spread
32% UK
68% International



Typical cohort age
20-29 years



Average cohort size
21



54% Female
44% Male
2% Other

*These figures give an indication of the course make-up at registration across our agrifood courses for the entry 2022-2023.

Accreditations



Food Systems and Management MSc
Future Food Sustainability MSc
are accredited by the Institution of Agricultural Engineers (IAgrE).



Food Systems and Management MSc
is accredited by The Institute of Food Science and Technology (IFST).

More than a degree with the Cranfield Enhance programme

Cranfield graduates are valued for their distinctive skills and capabilities. We have developed these programmes to complement and enhance what you learn on your chosen qualification. On the Cranfield Enhance programme, you will be able to earn 'digital badges' in areas such as Employability, Entrepreneurship, Sustainability and Outreach to showcase your new skills to prospective employers.

Read more at www.cranfield.ac.uk/enhance

Financing your studies

If you need advice on funding your course or living costs, we can provide information and a range of online tools to help you put together the funding package you need.

There is more information on our website:
www.cranfield.ac.uk/funding

How to apply

Read more about our entry requirements and how to apply:
www.cranfield.ac.uk/apply



Life at Cranfield

A welcoming, professional campus community.

Located just over an hour from London in the English countryside, Cranfield's campus environment supports close, working relationships between our multinational postgraduate students and academic and industry experts.

www.cranfield.ac.uk/visit



Have a look at some of our facilities in this virtual experience:

virtualtour.cranfield.ac.uk



Cranfield University works with over

1,500 businesses and governments
based in over 40 countries

These organisations include:



Related programmes:

Design: www.cranfield.ac.uk/designthinking

Energy: www.cranfield.ac.uk/energy

Environment: www.cranfield.ac.uk/environment

Water: www.cranfield.ac.uk/water

For a full list of Cranfield courses, please see our prospectus and website.

www.cranfield.ac.uk/agrifoodmsc

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