UCD School of Agriculture and Food Science
www.ucd.ie/agfood

MSc Sustainable Food Processing

Online Part Time

MSC | GRADUATE DIPLOMA | GRADUATE CERTIFICATE

www.ucd.ie/agfood | www.ucd.ie/online

CONTENTS

All information is correct as of August 2023, however may be subject to change.

1 WELCOME

Welcome to UCD and to the online Graduate Programmes in Sustainable Food Processing.

The warmest of welcomes to you to UCD. First of all may I congratulate on qualifying for the programme and committing to be part of new generation determined to address the major challenge facing humankind in the coming decades and centuries. As Former US President Barak Obama said "We are the first generation to feel the effect of climate change and the last generation who can do something about it."

As I am sure you are all aware with ever growing global populations we will have no choice but make the step change towards sustainable food production systems. I am acutely aware that this topic is a relatively new one and that many of you may feel you taking a risk by venturing outside of the traditional basic sciences. For that I congratulate you, however, let me reassure that in the future all food will have to be produced in the most sustainable manner possible and the skills, knowledge and expertise of far-thinking individuals like yourselves will be invaluable to humanity.

When you graduate with a Graduate Certificate, Graduate Diploma or an MSc, you will have not only have acquired all the attributes you need fulfil your own career life ambitions but also those of respective employers who are now acutely aware of the need for new skills and thinking to face the considerable challenges ahead for all of us. You will be exposed not only to like-thinking classmates but also those with the ability to think 'outside-the-box' and challenge your own views and ways of approaching challenges. The collegiality that this will inspire will no doubt lead to you making lifelong friends and you will also join a very prestigious group in UCD as a member of our alumni.

At UCD we have carefully structured the programme to help you make the most of this opportunity but we of course very open to change and we will continually strive to evolve the programme to address emerging trends, knowledge gaps and future opportunities. Whilst we are committed to ensuring our students have a good basic grounding in science and topics specific to Sustainable Food Processing successful graduates from other successful MSc programmes at UCD continually emphasise the importance of the transferable skills such as critical thinking, cognitive skills of analysis, evaluation and synthesis. Therefore you will be encouraged to develop these skills throughout the programme.

Creative thinking will be essential to solve what various commentators on climate change has referred to both the greatest challenge and opportunity facing humanity. We are therefore committed to fostering independent and creative thinkers and in fact these attributes will be essential for your successful completion of your chosen programme.

Sustainable food production is a global challenge requiring all stakeholders from consumers to food industry experts to governments to work together and this can only be achieved if all parties communicate and interact with each other and individuals outside their sphere of interest and expertise. Therefore communication skills are a key tenet of the programme as they are essential for you to become the new generation of advocates for a more sustainable way of living.

In many ways especially in Europe we are transitioning to a new way of working with a greater proportion of people working from home. In Ireland the latest statistics indicate that more than a third of the working population do so from home at least once a week. The positive environmental impact of this change in our manner of working has been facilitated largely by digital technology and shows no sign of abating. Therefore the fact that the present programme will be delivered entirely online chimes perfectly with the ambition of creating a society which functions productively in a sustainable manner. This also means that many of you will already be acquainted with the digital tools that have facilitated this step-change. However please be reassured that all the resources, support and experience necessary to allow you to harness the benefits of online teaching will be provided to you. Indeed please don't forget that while your course will be delivered online, you have full and complete access to all our services and campus, just as all the other students do. You will also be supported in your digital education by e-tutors whose role will be to assist you with module related issues and answer your questions as promptly as possible.

If any issues arise in terms of registration, you can contact the School Programme Offic). We are also very lucky on our programme, to have access to a dedicated programme administrator, Karen Holland. In addition, you can please contact me if you have any questions.

I look forward to meeting you and wish you the very best of success in the programme, future careers and life.

Best wishes,

Nigel Brunton

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2 PEOPLE

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Module		Co-ordinator	Email Address
FDSC40500	Chemistry of Nutrients	**Dr Jean-Christophe Jacquier**	jean.jacquier@ucd.ie
FDSC40520	Food Microbiology & Safety	**Associate Professor Amalia Scannell**	amalia.scannell@ucd.ie
FDSC40530	Principles of Biochemistry	**Associate Professor Nigel Brunton**	nigel.brunton@ucd.ie
FDSC40950	Food Health and Diet	**Dr Aleksandra Konic Ristic**	aleksandra.konicristic@ucd.ie
FDSC40930	Sustainability Project	**Associate Professor Nigel Brunton**	nigel.brunton@ucd.ie
BSEN30360	Life Cycle Assessment	**Professor Nick Holden**	nick.holden@ucd.ie
FDSC40980	Sustainability in Diet	**Dr Aleksandra Konic Ristic**	aleksandra.konicristic@ucd.ie
FDSC41020	Food Security	**Dr Aleksandra Konic Ristic**	aleksandra.konicristic@ucd.ie
HNUT40100	Food Regulatory Affairs	**Dr Fiona Lalor**	Fiona.lalor@ucd.ie
HNUT40130	Research Design and Statistics	**Dr Marco Garcia-Vaquero**	marco.garciavaquero@ucd.ie
FDSC40910	Food Processing	**Dr Tesfaye Bedane**	tesfaye.bedane@ucd.ie
FDSC40940	Food Toxicology	**Dr Mohammadreza Khalesi**	mohammadreza.khalesi@ucd.ie
FDSC41030	Food Chain Integrity	**Dr Tesfaye Bedane**	tesfaye.bedane@ucd.ie
FDSC41040	Environmental Food Processing	**Dr Tesfaye Bedane**	tesfaye.bedane@ucd.ie
FDSC41050	One Health	Dr Ajay Menon	ajay.menon@ucd.ie
FDSC40920	Plant Foods	Dr Ajay Menon	ajay.menon@ucd.ie
FDSC40900	Food Microbiology	**Dr Daniel Hurley**	daniel.hurley@ucd.ie
FDSC40970	Food Safety Genomics	**Dr Daniel Hurley**	daniel.hurley@ucd.ie
FDSC40890	Animal Foods	Dr Ajay Menon	ajay.menon@ucd.ie
FDSC40710	Bioinformatics in Food Safety	**Dr Daniel Hurley**	daniel.hurley@ucd.ie
FDSC40870	Food Micro Hazards	**Dr Daniel Hurley**	daniel.hurley@ucd.ie
HNUT40110	Food Quality and Safety	**Dr Fiona Lalor**	Fiona.lalor@ucd.ie

3 UCD

University College Dublin has been providing students with a high quality educational experience for over 165 years and is one of Europe's leading research-intensive Universities. At UCD undergraduate education, MSc and PhD training, research, innovation and community engagement form a dynamic spectrum of activity.

University College Dublin is one of Europe's leading research-intensive universities; an environment where undergraduate education, Masters and PhD training, research, innovation and community engagement form a dynamic spectrum of activity.

Ranked in the top 1% of higher education institutions world-wide, UCD is Ireland's largest and most globally engaged university; enrolling over 38,000 students drawn from 144 countries, including almost 5,000 students based at locations outside of Ireland.

UCD is also Ireland's leader in graduate education with over 12,000 graduate students; almost 20% of whom are graduate research students. This excellence in teaching and learning is globally recognised – 13 subjects are ranked in the top 100 in the world (QS World University Ranking by Subject 2023). Agricultural Sciences at UCD is ranked number 1 in Ireland, 6th in Europe and 24th globally in the latest US News and World Report Subject Rankings.

At UCD, we recognise the high demand in Ireland and overseas for further learning. We are committed to providing quality education and recognised university qualifications using modern, flexible learning approaches. Online learning is just one of these.

UCD Online was established in 2013 in response to increasing student demand, as well as to rapidly evolving advances in technology. Since then, proven, up-to-date course materials that are well developed and tested have been delivered online by the same academics that provide their expertise and support to students who attend the UCD campus. Thousands of students have advanced their careers by studying online for a recognised UCD qualification at graduate certificate, graduate diploma and masters level.

Prospective UCD Online students can look forward to the same quality academic material and support as our campus-based students. There is no difference between a UCD qualification obtained on campus or online. Studying online provides a proven option for students to achieve a UCD degree with the flexibility to combine this with work, family, or travel commitments.

Flexible online delivery means you can learn on-demand and in your own time with all the reassurance of UCD expertise and support. UCD Online helps you to expand your existing knowledge, study for a professionally recognised qualification, or gain new expertise to change career.

4 FAQ

Q: If I start on one programme and change my mind, can I move between options?

A: Yes, the Graduate Programmes in Sustainable Food Processing are approved Pathway Programmes. That means that students can progress from Graduate Certificate (30 ECTS), to Graduate Diploma (60 ECTS) to Masters (90 ECTS) taking all completed modules and associated grades on their academic record.

Equally if you start your registration on the Masters and decide to exit early you would have the option of exiting at Graduate Certificate or Graduate Diploma level.

All programmes are Level 9 under the National Framework of qualifications: **www.qqi.ie**

As these Graduate Programmes are approved University Pathway programmes if you decide to exit from the Programme it is possible to return at a later stage and work toward a higher award. Time limits and restrictions apply, please contact the School Graduate Administrator to discuss further.

Q: Is the entire MSc online?

A: Yes, lectures are pre-recorded and made available to students to study in their own time. There will be no requirement to attend campus. It is hoped that this flexible design will suit international and working individuals as well as offering remote learning opportunities. Each week following the release of module course material there is opportunity for online class discussion and questions.

All students registered to the programme are entitled to full access to all UCD Belfield Campus facilities (including Library, Online Library resources, and Sports Centre) and a UCD Student UCard.

Q: Is live attendance online compulsory?

A: No. Some lecturers will deliver lectures while recording so there will be an opportunity to interact at that time. While we recommend that you make yourself available online for the small number of evening tutorials designed to help with discussion and Q&A, these sessions will also be recorded and uploaded for everyone.

Q: What are the assessments like?

A: The assessments will vary according to the module and lecturer. However there is an emphasis on autonomous learning, continuous assessments including some assignments and MCQ exams.

Q: What is the workload?

A: For each 5 ECTS credit module earned students are expected to undertake about 125 hours of work, to include on-line activity and performing their own study, over the course of the 12 week teaching term. Formative assessments will be used to help you develop and critically assess your own understanding of the material presented. All modules will have a high continuous assessment component.

Q: I've read that the MSc is 90 credits. What does 90 credits mean?

A: The European Credit Transfer and Accumulation System (ECTS) is a points system for making courses more transparent.

For each 5 ECTS credit module earned students are expected to undertake about 125 hours of work, to include on-line activity and performing their own study.

Q: Will I attend Graduation and receive a UCD degree Parchment?

A: All UCD students on the MSc Sustainable Food Processing are invited to attend a conferring ceremony upon successful completion of their degree. All students on the programmes will be awarded a UCD parchment stating their qualification. The method of study (eg. online, on campus) is not stated on your parchment.

Q: How long do I have to complete my programme?

Please see below table outlining the minimum and maximum registration periods:

Programme	ECTS Credits	NFQ Level	Minimum Registration	Maximum Registration
Masters Part Time	90	9	2 years	4 years
Graduate Diploma Part Time	60	9	1.5 years	4 years
Graduate Certificate Part Time	30	9	1 year	4 years

Q: What is the Sustainability Project?

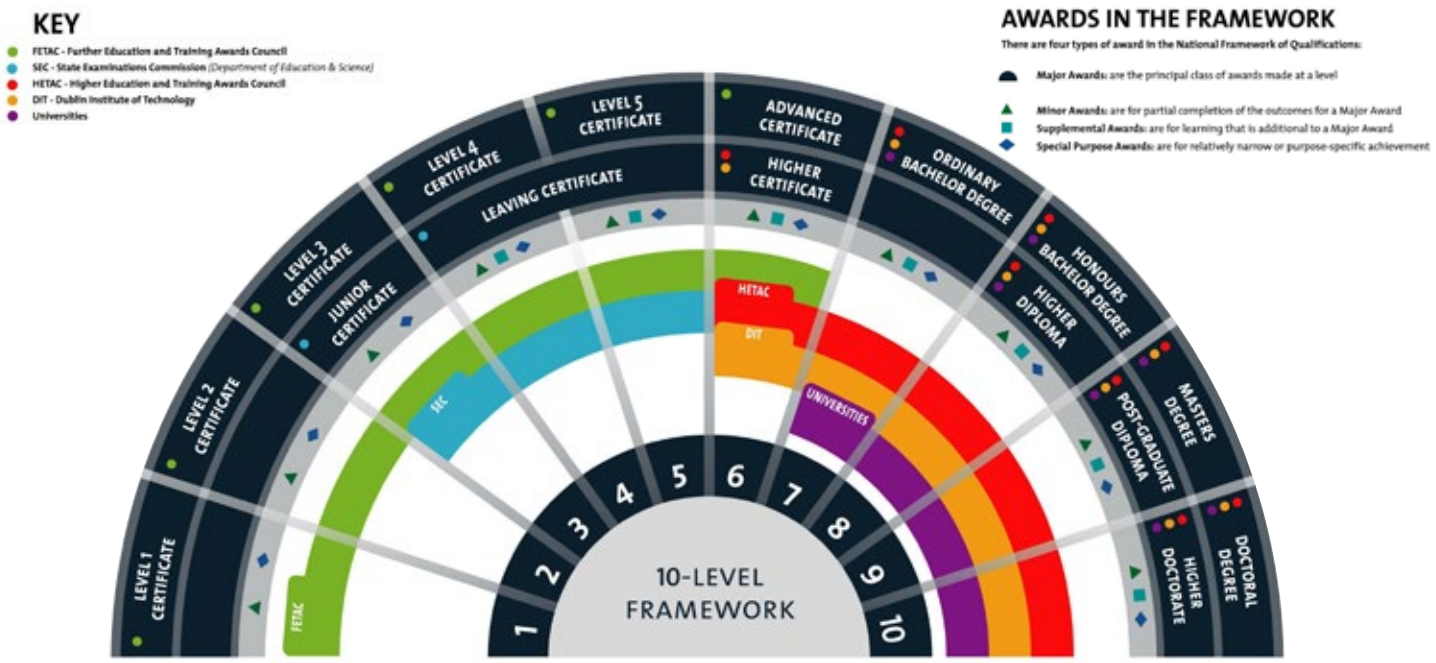
A: The overarching of objective the Sustainability Project is to develop a viable, original research project in the area sustainable foods / processing. In this module each student will have the opportunity to choose a project and, in conjunction with an academic staff member, devise a research methodology to meet the project objective(s). Ideally project would address issues key to the Irish Circular Bioeconomy or an issue which links to their present position with a sustainability aspect. Students will be given a template project application to fill out and will be assessed in part on the basis of this application form.

Q: Why would I choose the MSc in Sustainable Food Processing?

UCD's we have a long-standing commitment to addressing environmental sustainability concerns. means we are uniquely positioned to provide the skills, knowledge, and expertise to a new generation of individuals passionate about tackling this pressing global topic. UCD are ranked in the tops 30 Universities worldwide in the topic of Food Science based on the latest **QS ranking**. If you share our determination to make a positive impact and contribute to a more sustainable future, our University can offer you the educational foundation and opportunities to become a part of the solution. Students will be provided with excellent knowledge of the principles underlying the sustainable processing of foods enabling them to apply the technical knowledge acquired to the produce high quality, safe and nutritious foods, while maximising sustainability and minimising the environmental impact of food production and processing.

Q: Where will this MSc lead me?

Graduates of this MSc will be positioned for leadership roles in this critically important sector for the Global economy. Opportunities for employment would include Sustainability Manager, Environmental Officer, Food Processing Manager, Food Production Manager, Food Safety , New Product Development, Food Regulation Manager as well as emerging opportunities around Sustainable Food Systems.



5 LEARNING ENVIRONMENT AND PROGRAMME REQUIREMENTS

Master of Science, Graduate Diploma or Graduate Certificate (NFQ Level 9)

Degree Classification is outlined on the National Framework of Qualifications

The National Framework of Qualifications was established to create a coherent structure for the development and recognition of all awards within the Irish education system. It is founded on the principles of learning outcomes which identify the level of knowledge, skills and competence a learner should attain to achieve an award placed on the framework. It is a ten-level system (1–10) giving an academic or vocational value to qualifications obtained in Ireland. Each level is based on nationally agreed standards of what a learner is expected to know and be able to do after receiving an award.

www.qqi.ie

5.1 LEARNING ENVIRONMENT

BRIGHTSPACE, IT REQUIREMENTS

Modules are delivered through the UCD Brightspace system.

Information on how to use the UCD Brightspace system can be accessed on UCD IT Services:
www.ucd.ie/itservices/ourservices/students

5.2 PROGRAMME REGISTRATION

The Full Time and Part Time Programmes have one start date in September of each academic year. There is a January intake for the Part time Programmes only.

If you need help to complete your registration please contact the School Programme Office.

Please refer to the **Programme structure** for more information on the required registration breakdown.

Further information on registration is available at:
www.ucd.ie/students

Academic term dates can be found at:
www.ucd.ie/students/keydates.htm

Please ensure you check your UCD Connect email on a regular basis for updates relating to information on registration and relevant deadlines.

5.3 WITHDRAWING FROM MODULES

If you choose to withdraw from a module, you can do so without academic penalty before the end of Week 12 in a given trimester, or before the last day of teaching in a trimester, whichever comes sooner. If you register to the module again, this will be treated as a first attempt. A module fee will be incurred where a student withdraws from a module after Week 8 of a trimester.

If you need assistance about dropping modules from your registration, please contact the School Programme Office.

5.4 WITHDRAWING FROM THE PROGRAMME

Should you choose to withdraw from the Programme you must ensure you complete the appropriate Withdrawal Form. It is very important that you officially withdraw so that your registration record is updated accordingly. Failure to do so will impact on your record including fees payable. The withdrawal form is available online through your SIS web.

Further details can be found at:
www.ucd.ie/students/registration/howtowithdrawfromyourprogramme

5.5 EXAMINATION AND ASSESSMENT

The Graduate Programmes in Sustainable Food Processing are delivered and assessed online. Students do not need to attend campus for classes or assessment. Modules will be assessed on a continuous basis over the course of the trimester. All assessments will be online through UCD Brightspace, however if you are unable to complete an assessment in the indicated timeframe you must inform your Module Coordinator in advance.

Please refer to the **Extenuating Circumstances information** and the **Late Submission of Coursework Policy** depending on your reasons for non submission of an assessment. Important information on Assessment can be found on the UCD Assessment webpage: **www.ucd.ie/students/exams**
UCD General Academic Regulations can be accessed online at: **UCD Academic Regulations**

REPEATING/RESITTING FAILED EXAMS:

Please refer to the full **Module Descriptor** for details on the remediation options available.

In-module Resit

Where a student receives a provisional failing grade for a module, the student may avail of an in-module resit prior to confirmation of the module grade by the Programme Exam Board where an in-module resit is provided for in the module descriptor. Where a student receives a failing grade for an in-module resit attempt the original provisional failing grade for the module is retained.

Resit Assessment

A resit assessment offers students a second and separate opportunity to demonstrate that they have achieved the learning outcomes associated with a module. Re-attendance is not required. The resit assessment is a simple pass-fail instrument, and need only be the minimum assessment required to determine whether or not the student has satisfactorily achieved the major learning outcomes of the module. The resit assessment does not have to be identical to the assessment associated with the original offering of the module, and may be significantly different, nor do the different components of the assessment need to be reproduced and repeated in full.

- There will only be one resit assessment for each offering of a module.
- A resit assessment will not be available where an in-module resit is offered or where it is possible to repeat the module in one of the two subsequent trimesters.
- The resit may be a single terminal examination and/or submission of coursework or other assessment tasks at specified times during the trimester.

Repeat the Module

A repeat is the student's opportunity for a second attempt at the module through re-attendance when it is next offered.

For module grades and grade points relating to In-module Resits, Resit Assessments and Module Repeats, please refer to Section 6 of the **UCD Academic Regulations**

5.6 EXTENUATING CIRCUMSTANCES

If your study or assessments are impacted due to unanticipated difficulties it may be necessary to submit an application for Extenuating Circumstances. For further details please see the **Policy on Extenuating Circumstances.**

Application is online through your SISWeb account. To complete an application you will need to upload relevant supporting documentation to the online system. Please see further information at the following link: **www.ucd.ie/students/studentdesk/extenuatingcircumstances**

Application for Extenuating Circumstances for in-Trimester assessments must be made within 10 working days of the date of the assessment deadline and for final assessments, within 5 working days. Please contact staff in the School Programme Office should you have queries in relation to the policy or application process.

5.7 STUDENT CONDUCT AND ACADEMIC INTEGRITY

Becoming a UCD student means that you have joined a diverse and vibrant university community. As a member of this community it is important that you are respectful in your interactions with others and that you uphold the high standards of personal responsibility and academic integrity that is expected of all students. The University sets out its values in the UCD Strategy and outlines its commitments and expectations regarding standards of conduct in the Student Charter, Student Code of Conduct and the UCD Dignity and Respect Policies. It is important that you familiarise yourself with these documents as they help to ensure a fair and positive learning and working environment for everyone at UCD.

www.ucd.ie/secca/studentconduct

Plagiarism

Information on Academic Integrity (Referencing, Citation & Avoiding Plagiarism) is available on the UCD Library website: **https://libguides.ucd.ie/academicintegrity/overview**

The following is an extract from the **document**:

Academic integrity is one of the core values of the UCD Education Strategy and includes adherence to the highest ethical and academic standards. Students, researchers and staff achieve academic integrity through sound academic writing, avoiding plagiarism, and use of appropriate referencing and citation.

Plagiarism is the inclusion, in any form of assessment, of material without due acknowledgement of its original source. Plagiarism is a form of academic dishonesty and may include, but is not limited to, the following:

- Presenting in your own name, work authored by a third party, such as other students, friends or family (with or without permission), or work purchased through any source or given to you by a third party1, including organisations such as essay mills. The original source may be in written form or in any other media (for example, audio or video);
- Presenting ideas, theories, concepts, methodologies or data from the work of another without due acknowledgement;
- Incorrect paraphrasing, presenting text, digital work, music, video recordings or images of others with only minor changes (e.g., using synonyms or changing the sentence structure) from an original source; the inclusion of a citation does not eliminate this. Correct paraphrasing in your own words must also include appropriate citation of the original source material. Failing to include appropriate citation of all original sources
- Representing collaborative work as solely your own;
- Presenting work for an assignment which has also been submitted (in part or whole) for another assignment at UCD or another institution (i.e. self-plagiarism).

Plagiarism can be either intentional or unintentional. In both instances it is a serious academic offence and may be subject to University disciplinary procedures.

5.8 GENERAL DATA PROTECTION REGULATION (GDPR)

GDPR governs the use of personal and identifying information on students and staff. Lectures are recorded as part of this online postgraduate programme which may include contributions by individuals during classes. Any identifying information will only be used in fulfilment of the public task duties of UCD, and students are referred to the links below for more information.

www.ucd.ie/gdpr

www.ucd.ie/students/services/ucdprivacystatementforstudents

6 PROGRAMME STRUCTURE

6.0 MASTERS IN SUSTAINABLE FOOD PROCESSING

Students will be required to complete 90 ECTS credits over their programme registration (minimum 2, maximum 4 years) 25 credits of core modules (which are mandatory) and 65 credits of option modules.

Core Modules: Students must take the 25 credits of core modules.	Term Available	Module Code	Module Title	Credits
	Autumn	**FDSC40500**	Chemistry of Nutrients	5
	Autumn	**FDSC40520**	Food Microbiology & Safety	5
	Autumn	**FDSC40530**	Principles of Biochemistry	5
	Autumn	**FDSC40950**	Food Health and Diet	5
	Spring	**FDSC40930**	Sustainability Project	5

Students should if possible take FDSC40500, FDSC40520, FDSC40530, and FDSC40950 in the Autumn trimester of Year 1 of their programme. These modules are pre-requisites for several Spring modules.

Group 1 Option Modules Students must take all option modules from Group 1 (50 credits)	Term Available	Module Code	Module Title	Credits
	Autumn	**BSEN30360**	Life Cycle Assessment	5
	Autumn	**FDSC40980**	Sustainability in Diet	5
	Autumn	**FDSC41020**	Food Security	5
	Autumn	**HNUT40100**	Food Regulatory Affairs	5
	Autumn	**HNUT40130**	Research Design and Statistics	5
	Spring	**FDSC40910**	Food Processing	5
	Spring	**FDSC40940**	Food Toxicology	5
	Spring	**FDSC41030**	Food Chain Integrity	5
	Spring	**FDSC41040**	Environmental Food Processing	5
	Spring	**FDSC41050**	One Health	5

Group 2 Option Modules Students must take up to 15 credits of Group 2 option modules over their programme registration.	Term Available	Module Code	Module Title	Credits
	Autumn	**FDSC40920**	Plant Foods	5
	Autumn	**FDSC40900**	Food Microbiology	5
	Autumn	**FDSC40970**	Food Safety Genomics	5
	Spring	**FDSC40890**	Animal Foods	5
	Spring	**FDSC40710**	Bioinformatics in Food Safety	5
	Spring	**FDSC40870**	Food Micro Hazards	5
	Spring	**HNUT40110**	Food Quality and Safety	5

6.1 GRADUATE DIPLOMA IN SUSTAINABLE FOOD PROCESSING

Students will be required to complete 60 ECTS credits over their programme registration (minimum 1.5 years, maximum 4 years). 20 credits of core modules (which are mandatory) and 40 credits of option modules.

Core Modules:
Students must take the 20 credits of core modules.

Term Available	Module Code	Module Title	Credits
Autumn	**FDSC40500**	Chemistry of Nutrients	5
Autumn	**FDSC40520**	Food Microbiology & Safety	5
Autumn	**FDSC40530**	Principles of Biochemistry	5
Autumn	**FDSC40950**	Food Health and Diet	5

If possible, students should take the core modules in the Autumn trimester of Year 1 of their programme. These modules are pre-requisites for several Spring modules.

Group 1 Option Modules
Students must take a minimum of 25 credits and may take a maximum of 40 credits of Group 1 option modules over their programme registration.

Term Available	Module Code	Module Title	Credits
Autumn	**BSEN30360**	Life Cycle Assessment	5
Autumn	**FDSC40980**	Sustainability in Diet	5
Autumn	**FDSC41020**	Food Security	5
Autumn	**HNUT40100**	Food Regulatory Affairs	5
Autumn	**HNUT40130**	Research Design and Statistics	5
Spring	**FDSC40910**	Food Processing	5
Spring	**FDSC40940**	Food Toxicology	5
Spring	**FDSC41030**	Food Chain Integrity	5
Spring	**FDSC41040**	Environmental Food Processing	5
Spring	**FDSC41050**	One Health	5

Group 2 Option Modules
Students may take up to 15 credits of Group 2 option modules over their programme registration

Term Available	Module Code	Module Title	Credits
Autumn	**FDSC40920**	Plant Foods	5
Spring	**FDSC40890**	Animal Foods	5
Spring	**HNUT40110**	Food Quality and Safety (O/L)	5

6.2 GRADUATE CERTIFICATE IN SUSTAINABLE FOOD PROCESSING

Students will be required to complete 30 ECTS credits over their programme registration (minimum 1 year, maximum 4 years). 20 credits of core modules (which are mandatory) and 10 credits of option modules.

Core Modules:
Students must take the 20 credits of Core Modules over the course of their programme registration.

Term Available	Module Code	Module Title	Credits
Autumn	FDSC40500	Chemistry of Nutrients	5
Autumn	FDSC40520	Food Microbiology & Safety	5
Autumn	FDSC40530	Principles of Biochemistry	5
Autumn	FDSC40950	Food Health and Diet	5

Core modules are pre-requisites for several Spring modules so please keep this in mind when planning your registration.

Option Modules
Students must take 10 credits of optional modules over their programme registration.

Term Available	Module Code	Module Title	Credits
Autumn	BSEN30360	Life Cycle Assessment	5
Autumn	FDSC40980	Sustainability in Diet	5
Autumn	FDSC41020	Food Security	5
Spring	FDSC40910	Food Processing	5
Spring	FDSC41030	Food Chain Integrity	5
Spring	FDSC41040	Environmental Food Processing	5
Spring	FDSC41050	One Health	5

7 MODULE OVERVIEW

This is a summary of the MSc module descriptors. Full module descriptors including details on assessment and remediation can be found on the **UCD Course Search**

FDSC40500
Chemistry of Nutrients

Credits:	5 ECTS
Trimester Available:	Autumn
Pre/Co Requisite:	NA
Module Coordinator	Dr Jean-Christophe Jacquier

PURPOSE & OVERARCHING CONTENT

After a brief review of key concepts in chemistry, with a view to highlight the importance of water in all biochemical processes, this module is intended to equip students with an introduction to the key biologically important organic substances which are responsible for structure and function in living cells, namely, carbohydrates, lipids and proteins. The main aim of the module is to focus on the occurrence, chemical structures, physical and chemical properties of important members of each group in order to illustrate why cell structure and metabolism in plants and animals is dependent on these substances.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Describe the chemical and physical properties of key members of the three main classes of food macronutrients.
  Illustrate how the distinctive properties of each class of biomolecule contribute unique features to structure and function in plant and animal systems.
- Demonstrate a practical ability to show that simple methods of chemical analysis can be used to distinguish between the different classes of macronutrient and to characterize individual members within a class.

APPROACHES TO TEACHING AND LEARNING:

- Extensive written notes on the various lecture topics will be available through Brightspace for the students as well as video tutorials explaining key concepts in detail. These notes and tutorials will be supplemented by non-graded video labs consisting of a series of short videos showing key experiments used to characterise and differentiate these food biomolecules.
- A discussion board will be open on Brightspace with topics aligned to lectures so as to allow students to interact more freely. These discussions and questions will be answered weekly with video tutorials.
- A weekly online session will take place to enable students to interact and do some group activities around topical food issues.
- Students will present an end of term multimedia project (short video, poster, infographics, etc) on a given nutrient to showcase their learning on this topic to the rest of the class.

FDSC40520
Food Microbiology & Safety

Credits	5 ECTS
Trimester available	Autumn
Pre/Co Requisite:	NA
Module coordinator	Associate Professor Amalia Scannell

PURPOSE & OVERARCHING CONTENT

The course will address four key questions intrinsic to applied aspects of food microbiology:

- What microbes are important in food spoilage and foodborne disease?
- How are these microbes identified, differentiated, and enumerated?
- What are the important factors determining microbial growth in food?
- How can these factors be manipulated to ensure food quality and safety?

LEARNING OUTCOMES:

On completion of this course the student should be able to:

- Propose methods to enumerate and differentiate different classes of Bacteria.
- Identify and describe the main pathogens and spoilage microorganisms associated with specific food types.
- Describe the basic principles of food spoilage and preservation.
- Devise preservation/fermentation protocols using intrinsic and extrinsic food-related factors.
- Successfully resource and critically review reliable published literature and integrate key concepts appropriately in written assignments.
- Work in a team in an online environment.

APPROACHES TO TEACHING AND LEARNING:

This module will be delivered online. Lecture material and supporting text as well as required reading will be provided to the students. An online discussion board, monitored by a tutor will be used to capture and address student queries on module content and assessment criteria. A set of 'just-in-time' online classes/ discussions will be mediated by tutors and/or Module Coordinators to support student learning. Assessment will focus on developing resource curation, concept map development, critical thinking, and communication through Scientific Writing. Assessment will include elements of negotiated learning and peer-peer learning. Assessment Rubrics will be provided in advance of assignments to feed forward into the learning process and alert students to assessment expectations. Students will also self-review their work prior to submission using these rubrics to demonstrate an understanding of the learning requirements for each assignment and to analyse the quality of their work in an objective way.

FDSC40530
Principles of Biochemistry

Credits	5 ECTS
Trimester available	Autumn
Pre/Co Requisite:	NA
Module coordinator	Dr Nigel Brunton

PURPOSE & OVERARCHING CONTENT

The main aim of this module is to introduce students to how humans can extract energy from macronutrients (i.e. carbohydrates, fats, proteins). This will progress from the digestion, absorption and transport of macronutrients to converting them to a usable form of energy suitable to the functions of the body.

Selected metabolic pathways will be covered, as will regulation mechanisms and interactions of the metabolic pathways.

The module will be delivered through the UCD Brightspace system and will consist of:

- Audio and demonstrations by the lecturers
- Online assessed multiple choice quizzes
- Discussion threads
- Computer aided laboratories

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Explain how humans can extract, transform and utilise energy from their environment.
- Predict how humans react to various states of nutrition, which it may be subjected to over a period.
- Assess the role, mode of action and interaction of various hormones involved in nutrient metabolism.
- across livestock production systems

APPROACHES TO TEACHING AND LEARNING:

The module content is delivered via a series of online lectures with accompanying notes at the end of each lecture a series of multiple choice questions are addressed based on the content of the lecture.
At the end of the term students submit an assignment in the form of a description of the digestion and metabolism of a chosen foodstuff. The student must describe the digestion, absorption, delivery to cell and energy derived from each macronutrient the foodstuff contains. Students can use external references as evidence for particular statements and are encouraged the synthesize, interpret and extend information in the lecture notes.

FDSC40950
Food Health and Diet

Credits	5 ECTS
Trimester available	Autumn
Pre/Co Requisite:	NA
Module coordinator	Dr Aleksandra Konic Ristic

PURPOSE & OVERARCHING CONTENT

The module introduces the fundamental principles of human nutrition and nutritional science in general. It defines nutrients and nutrient and energy balance, describes macronutrients (proteins, carbohydrates, fat, and alcohol), their metabolism in the human body and how it is regulated. It addresses micronutrients (vitamins and minerals), their specific roles in development and health, main dietary sources, and the consequences of their deficiencies and excessive intakes. The module defines nutritional recommendations and food-based dietary guidelines, describes the scientific principles underlying both, the difference between them and explains the variation in the latter across the globe, highlighting the importance of environmentally sustainable approach. Nutritional requirements across the life span and specific requirements depending on gender, physiological conditions or activity level are addressed as well.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Identify macro and micronutrients required for normal development and health, explain their major functions in the body, main dietary sources, metabolism, and the effects of insufficient and excessive intakes.
- Explain the meaning of energy balance and describe methods to calculate energy needs.
- Understand the nutrient requirements for healthy and balanced diet, how they are determined and how this information affects consumers and public policies.
- Explain how nutritional requirements differ between individuals, depending on age, gender, physiological conditions, and physical activity level.
- Describe the concepts of nutritional requirements and recommendations compared to foodbased dietary guidelines.
- Discuss dietary guidelines acknowledging both the environmental sustainability and factors that determine food choice.

APPROACHES TO TEACHING AND LEARNING:

The key teaching and learning approaches used in this module are:

- Lectures
- Learning through examples and case studies
- Problem based and active/task-based learning

All material (slides, recorded lectures) will be available in Brightspace.

Students are responsible for attending the lectures, reading lecture material as suggested, completing homework and assignments. Students are advised to note any questions they may have on the material and ask these during lectures dedicated for this, or speak to the module coordinator and/or tutor.

FDSC40930
Sustainability Project

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Associate Professor Nigel Brunton

PURPOSE & OVERARCHING CONTENT

Each student will be required to choose a project and, in conjunction with an academic staff member, a research methodology will be devised to meet the project objective(s). The students will subsequently conduct the necessary practical work (evaluate the findings obtained from the study, prepare a written report and an oral presentation.

OVERARCHING CONTENT

- Developing a viable, original research project in the area sustainable foods / processing.
- Students must develop their own project idea and describe how they would investigate this knowledge gap including the tasks involved in delivery of the project.
- Ideally project would address issues key to the Irish Circular Bioeconomy or an issue which links to their present position with a sustainability aspect.
- Students will be given a template project application to fill out and will be assessed in part on the basis of this application form.

LEARNING OUTCOMES:

On completion of this module students should be able to: Select and appraise the relevant literature to determine the latest knowledge developments in the subject area of the project; Manage, organise and plan their time to successfully perform the project tasks; Generate and clearly present the results/outcomes of the study; Assess and evaluate data to provide clear evidence and support conclusions; Select and present the key findings using Powerpoint slideshows; Communicate in verbal and written terms the meaning of their results and make interpretations and inferences from the findings.

APPROACHES TO TEACHING AND LEARNING:

The student will then meet their assigned supervisor to discuss the project and arrange regular meetings. At the end of the semester, the student must produce a proposal for a research project in the area of sustainable foods. This proposal will be corrected by the student's supervisor. Also at the end of the semester students must present their work (in the form of a 15-minute oral presentation with questions at the end) to other members of the class and staff in the Food Science Department. Staff members assign marks to the presentation which is worth 15% of their final mark. The final component of the mark is called the supervisor's mark which is based on the supervisor's assessment of the student's commitment to the project, level of engagement and critical thinking displayed.

BSEN30360
Life Cycle Assessment

Credits	ECTS
Trimester available	Autumn
Pre/Co Requisite:	NA
Module coordinator	Professor Nick Holden

PURPOSE & OVERARCHING CONTENT

This module introduces the principles and methods of life cycle thinking and life-cycle assessment (LCA) with specific reference to agriculture, food and energy systems using attributional LCA. The module will be based around the ISO 14040 methodology andILCD handbook. The module will focus on the four common stages of LCA: (i) definition of the Goal and Scope; (ii) Life Cycle Inventory Analysis; (iii) Life Cycle Impact Assessment and (iv) Interpretation. Case studies will consider LCA studies of agriculture, food and energy systems. Learning will be faciitated through completion of an example project that will be completed throughout the module.

LEARNING OUTCOMES:

- Prepare a goal and scope statement for an LCA of a product or process;
- Organize and manipulate data sources to build an LCI in order to undertake an LCA of a product or process;
- Calculate a simple LCIA (for climate change impact) of a product or process;
- Communicate LCA findings using ISO standard reporting and oral presentation.

APPROACHES TO TEACHING AND LEARNING:

- Problem based assignments that build to a completed LCA project
- Directed reading
- Online lectures
- Online tutorials to progress through the LCA project

HNUT40110
Food Quality and Safety

Credits	5 ECTS
Trimester available	Autumn

Pre/Co Requisite:

FDSC40500 Chemistry of Nutrients

FDSC40530 Principles of Biochemistry

HNUT40060 Intro to Nutrition

Please contact the Programme Office to arrange registration

Module coordinator Dr Fiona Lalor

PURPOSE & OVERARCHING CONTENT

Food Regulatory Affairs is an interdisciplinary subject that integrates science, law and policy as they apply to the regulation of the food chain from farm to fork. In this module, you will study the role of European Union (EU) institutions in the development of food regulation, the evolution of the EU approach to food regulation from the early days of "recipe law" and mutual recognition, to the present focus on consumer protection. The role of international organisations with a food regulatory remit will be studied including Codex, WHO, WTO FAO. The development of a risk-based approach to food safety underpinned by science, and current regulatory issues e.g.food fraud and adulteration, food additives and contaminants, legislation on food information for consumers, nutrition and health claims, and food hygiene will be explored.

The module will be delivered online through UCD Brightspace and will consist of:

- Online lectures, videos and audio presentations
- Asynchronous and synchronous discussion
- Autonomous learning
- Written Assignments
- Case Studies

LEARNING OUTCOMES:

On successful completion of this module student will be able to

- Critically review evolution of EU food regulatory policy
- Interlink and co-ordinate knowledge regarding roles and activities of key stakeholders – producers, processors, regulators, consumers
- Apply knowledge about food legislation to answer a range of regulatory affairs questions from the perspective of the range of food sector stakeholders
- Analyse the vertical and horizontal regulatory elements that make up farm to fork regulation
- Interpret published scientific data in the area of food regulatory affairs
- Critically analyse literature and scientific data as it relates to FRA
- Communicate with various stakeholder sectors
- Explore and evaluate alternative positions and devise strategies for appropriate implementation

APPROACHES TO TEACHING AND LEARNING:

Lectures; active/task-based learning; enquiry and problem based learning; critical analysis and evaluation

HNUT40130
Research Design and Statistics

Credits	5 ECTS
Trimester available	Autumn
Pre/Co Requisite:	
FDSC40500	Chemistry of Nutrients
FDSC40530	Principles of Biochemistry
HNUT40060	Intro to Nutrition
***Please contact the Programme Office to arrange registration**	
Module coordinator	Dr Marco Garcia-Vaquero

PURPOSE & OVERARCHING CONTENT

The overall objective of this module is to introduce the students to key statistical knowledge needed for performing and understanding statistical tests needed to perform research in the fields of food, nutrition and health. The fundamental understanding of research design, assumptions and limitations of different studies needed to properly interpret the scientific literature will also be core to this module.

These objectives will be achieved through online asynchronous sessions covering the theoretical aspects of statistics as well as synchronous and asynchronous practical sessions with SPSS. All questions will be replied in synchronous sessions and mainly through the interactive Forum of the module.

The learning and achievement of outcomes will be performed by a continuous assessment strategy including several MCQs and practical assessments related to the content covered in the sessions as well as individual research work of each student.

LEARNING OUTCOMES

The main learning objectives of the module are:

- To develop understanding of the theoretical concepts underlying project design and statistical analysis.
- To analyse, reflect and perform relevant statistical tests needed to obtain information from a data set using various statistical tools.
- To reflect and critically analyse the results and significance of the statistical analysis performed.
- To develop the ability to discern what statistical tools are needed based on the questions posed.
- To understand the main limitations/advantages of different statistical tools used in scientific research in the field of food, nutrition and health.
- To be able to generate high quality and well formatted data representations from different statistical analysis.

APPROACHES TO TEACHING AND LEARNING

The learning objectives will be achieved through the completion of the different activities proposed in this fully online module. This includes online asynchronous sessions covering the theoretical aspects of statistics, synchronous and asynchronous practical sessions with SPSS and forum questions/feedback as needed by each individual learner.

As this an introductory module to new concepts and basics of a discipline, the assessment will be performed individually. The progress of each learner towards achieving the proposed learning outcomes will be assessed by a continuous assessment strategy. The assessment of and for learning will include several MCQs and practical assignments in which the learners will also have to apply, critically assess and demonstrate their understanding of the theoretical sessions and their practical applications in Food, nutrition and health research consulted to complete these assessments.

FDSC40910
Food Processing

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Dr Tesfaye Bedane

PURPOSE & OVERARCHING CONTENT

This module aims to provide the students with the necessary knowledge of food processing and a basic understanding of the principles of key unit operations and equipment used in the processing of foods. The module specifically examines the theory behind processes and equipment used for preservation (e.g. pasteurisation/ sterilisation, dehydration, and freezing) and separation operations (e.g. evaporation, filtration, and centrifugation, crystallization) as well as combination of processes (e.g. mixing and emulsification, extrusion) that are used in food processing. In addition, this module provides an understanding of how individual unit operations or different unit operations are integrated in preserving and transforming food commodities into a range of products during commercial food production.

LEARNING OUTCOMES:

- Explain the principles behind food preservation, heat processing, separation operations and other combination of unit operations in the processing of food
- Understand and apply knowledge of the principles of each unit operation to select suitable equipment for a specific product and operation.
- Determine the impacts of food processing on the quality and safety of food products
- Compare and contrast various items of equipment that would be suitable for processing specific products
- Apply mathematical calculations to determine basic parameters required in food processing, such as Z-value, D-value, F0, freezing time and others.

APPROACHES TO TEACHING AND LEARNING:

The key teaching and learning approaches used in this module are:

- Lectures
- Enquiry and Problem based learning
- Active/task-based learning
- Online Lab demonstrations

FDSC40940
Food Toxicology

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Dr Mohammadreza Khalesi

PURPOSE & OVERARCHING CONTENT

This module will provide an introductory knowledge of the toxic substances in food products. Their sources, their nature, their properties, their impact on the human health in brief and the strategies to eliminate/reduce these toxic substances will be discussed in brief. Food allergy, carcinogens, mycotoxins, bacterial toxins, pesticides, dioxin and the toxins generated during food processing are among the subjects that will be covered within this module.

LEARNING OUTCOMES

By the end of the module, students should be able to:

- demonstrate fundamental information on the properties of different types of food toxins
- understand the role of food processing on the elimination/reduction of food toxins

APPROACHES TO TEACHING AND LEARNING

- Lectures,
- Class-activities
- Out of class assignments
- Team working/project

FDSC41030
Food Chain Integrity

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Dr Tesfaye Bedane

PURPOSE & OVERARCHING CONTENT

The module aims to provide learners with a basic understanding of local food production and small and medium-sized enterprise (SME) processing of food, including their roles and benefits in the food production chain. Learners will gain knowledge of various types of local food production systems and SME food processing and their impact on the economy and environment. The module provides a comprehensive understanding of the various factors that influence food chain integrity, including the safety of food processing, hygienic design for food processing, good manufacturing practices, HACCP and principles of cleaning in food processing and production. Learners will also explore the challenges and risks associated with local food production and SME food processing, along with the standards and codes of practice governing them.

LEARNING OUTCOMES

On completion of this module, students will be able to:

- Explain the importance of local food production and SME processing of food
- Develop an understanding of the economic, social, and environmental impact of the local production and SME processing of food.
- Understand and apply conceptual knowledge of safe food processing
- Explore and discuss good manufacturing practices in processing of food including HACCP and risk analysis
- Understand and explain the standards and regulations in hygienic design of food processing facilities

APPROACHES TO TEACHING AND LEARNING

The module will be delivered entirely online. Lectures will be recorded and uploaded weekly, and live tutorials will be held online throughout the trimester.

FDSC41040
Environmental Food Processing

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Dr Tesfaye Bedane

PURPOSE & OVERARCHING CONTENT

The aim of this module is to provide a comprehensive understanding of the impacts of food processing on the environment and alternative tools available to contribute to the sustainable processing of foods using green technologies. The module will help the students to critically examine the role of emerging food processing technologies in meeting current and future nutritional demands. It is also intended to provide principles of key emerging food processing technologies, their mechanisms, and their effects on food quality characteristics as well as on the structural and physicochemical properties inherent to each processing approach. In addition, the module will enhance understanding of ways and means of making food processing sustainable through waste recovery.

Specific emerging technologies covered in this module include thermal and non-thermal technologies that are used in food processing, such as pulsed electric field (PEF), ohmic/moderate electric field (MEF), Microwave (MW), radio frequency (RF), high pressure, ultrasound, and others. Specific research-based case studies will be used to illustrate the technologies presented in this module.

LEARNING OUTCOMES

- Understand and critically assess the impacts of food processing on the environment
- Develop an understanding of the rationale and drivers for emerging technologies in sustainable food processing
- Gain a basic knowledge of the principles and mechanisms of selected thermal and non-thermal emerging technologies applied to food processing operations
- Compare and contrast the effects of different emerging processing technologies on the safety and quality of foods and on the environment.
- Integrate and apply knowledge of key emerging technologies in sustainable food processing
- Develop the ability to identify and propose appropriate technologies for a specific product or process using research skills

APPROACHES TO TEACHING AND LEARNING

Lectures will be recorded and uploaded weekly, and live tutorials will be held online throughout the trimester.

FDSC41050
One Health

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Dr Ajay Menon

PURPOSE & OVERARCHING CONTENT

This module aims at providing the broad view One Health from the perspective of food health and safety. This includes learning the fundamentals of One health as a concept, epidemiology, zoonoses, real world case studies, diagnostics and the future trends and challenges of One Health in the 21st century. The module will end with creating an appreciation for seeing One Health as a part of the greater global sustainable development framework.

LEARNING OUTCOMES

On completion of the module, the students should be able have a broad knowledge of One Health, zoonoses and epidemiology. A major outcome would be the ability to analyse information pertaining to major zoonoses of current importance, communicating ideas and conclusions effectively using the globally accepted "language" of one health and sustainability.

INDICATIVE MODULE CONTENT

Phase 1: One Health Fundamentals

Lecture 1: One Health Initiative

Lecture 2: Introduction to Epidemiology

Lecture 3: Diagnostics and Methods

Lecture 4: Zoonoses

Phase 2: Case Studies

Lectures 5-9: Studying Zoonoses of particular importance in detail

Phase 2: One Health Future

Lecture 10: Anti Microbial Resistance

Lecture 11: Climate Change and One Health

Lecture 12: One Health Challenges and Future Perspectives

APPROACHES TO TEACHING AND LEARNING

The module will mainly be delivered by online lectures, however there will be aspects of active and reflecting learning, critical and problem based thinking, and analytical report writing.

FDSC40920
Plant Foods

Credits	5 ECTS
Trimester available	Autumn
Pre/Co Requisite:	NA
Module coordinator	Dr Ajay Menon

PURPOSE & OVERARCHING CONTENT

This module aims at providing the basic fundamentals of understanding various plant products, including their importance, production, processing and storage as well as the future trends and challenges. The module will end with creating an appreciation for seeing plant products and commodities as a part of the greater global food production and sustainable development framework.

LEARNING OUTCOMES

On completion of the module, the students should be able have a broad knowledge of major plant product groups along with the basic biology, chemistry, economics and current trends as well as future challenges. A major outcome would be the ability to analyse information pertaining to these topics and communicating their ideas and conclusions effectively using widely accepted terminology.

INDICATIVE MODULE CONTENT:

The module will cover the following topics: Cereals; Gluten free psuedocereals; Breakfast cereals; Pastas and extrusion; Pulses; Vegetables; Fruits; Beverages and Chocolate. Additionally, general processing such as extrusion, milling, bread making, malting, brewing, storage and transport will be discussed.

APPROACHES TO TEACHING AND LEARNING

The module will be delivered by online lectures, however there will be aspects of active and reflecting learning, critical and problem based thinking, and analytical report writing.

FDSC40890
Animal Foods

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Dr Ajay Menon

PURPOSE & OVERARCHING CONTENT

This module will provide the students with the broad knowledge and fundamentals that would prepare them for building a meat and dairy concepts skillset for a career in the food sector. It has been divided into two sections: meat and dairy, which cover the introductory chemistry, processing, production, safety and storage of the two categories of meat product as raw materials.

LEARNING OUTCOMES

On completion of the module, the students should be able have a broad knowledge of major animal products- with a focus on meat and dairy products- along with the basic biology, chemistry, economics and current trends as well as future challenges. A major outcome would be the ability to analyse information pertaining to these topics and communicating their ideas and conclusions effectively using widely accepted terminology.

INDICATIVE MODULE CONTENT

Section 1: Meat

Meat properties including colour, tenderness, water holding, flavour; animal production factors; quality and sustainability; traceability and authenticity of meat products.

Section 2: Milk

This part of the course will cover milk proteins, milk lipids, lactose and other milk constituents; stability of milk and other milk products; cheese, fermented milks, butter and milk powers.

APPROACHES TO TEACHING AND LEARNING

The module will be delivered by online lectures, however there will be aspects of active and reflecting learning, critical and problem based thinking, and analytical report writing.

FDSC40710
Bioinformatics in Food Safety

Credits	5 ECTS
Trimester available	Spring
Pre/Co Requisite:	NA
Module coordinator	Dr Daniel Hurley

PURPOSE & OVERARCHING CONTENT

This module is designed for graduates who want to develop their expertise in bioinformatics as applied to food safety and is also relevant to those studying molecular biology from a wide range of degree courses. The online lectures and materials will give you the necessary theoretical foundation and applied practical skills to manage data in silico from large experimental datasets.

LEARNING OUTCOMES

On completion of this module students should be able to:

- Describe the principles underpinning microbial genomics in food safety
- Apply the practical analytical skills gained in the basic concepts of bacterial whole genome sequencing data analysis
- Identify and critique the limitations and strengths of methodological approaches used in bioinformatic research papers
- Integrate bioinformatic workflows into the analysis of research datasets
- Communicate the findings from bioinformatic analyses to audiences with varying domain knowledge
- Consult on and guide the experimental design of future research projects

The course will address topics focussing on applied aspects of bioinformatics in food safety:

- Accessing and searching public databases
- Basic scripting
- Critical evaluation and quality control of data
- Implementation of experimental design into in silico analyses
- Introduction to whole genome sequencing analysis

APPROACHES TO TEACHING AND LEARNING

This module will be delivered through the UCD VLE system and practical tutorials that will consist of:

- Lectures
- Classroom practical tutorials
- Asynchronous discussion threads

HNUT40110
Food Quality and Safety

Credits	5 ECTS
Trimester available	Spring

Pre/Co Requisite:

FDSC40500 Chemistry of Nutrients

FDSC40530 Principles of Biochemistry

HNUT40060 Intro to Nutrition

Please contact the Programme Office to arrange registration

Module coordinator Dr Fiona Lalor

PURPOSE & OVERARCHING CONTENT

Food quality is the quality characteristics of food that is acceptable to consumers and is an essential food manufacturing requirement. Food quality covers the safety of the food processing environment; manufacturing and processing standards e.g dietary, nutritional or medical. This module will include origin and ethical food production, food safety and safe food processing, food quality management GMP and GHP, risk analysis, and the role of HACCP in the risk analysis process, Other aspects of food quality including genetically modified foods, and food quality assurance schemes will also be covered. The quality debate at EU level will be addressed.

The module will be delivered through the UCD Brightspace system and will consist of:

- Online lectures, videos and audio presentations
- Asynchronous and synchronous discussion
- Autonomous learning
- Written Assignments

LEARNING OUTCOMES

On successful completion of this module student will be able to:

- Discuss the core components of food quality
- Analyse data sets relevant to food quality issues
- Source and evaluate key literature as it relates to food quality
- Critically evaluate conflicting views related to food quality issues
- Communicate food quality issues to lay and expert audience
- Critically analyse case studies as they relate of food quality issues

APPROACHES TO TEACHING AND LEARNING

Lectures, active learning, problem- based learning, critical review of scientific literature, reflective learning,

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