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

MSc Animal Science

Online Full Time & Part Time

MSC | GRADUATE DIPLOMA | GRADUATE CERTIFICATE

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

CONTENTS

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

1 WELCOME

Welcome to UCD, particularly to the School of Agriculture and Food Science and to your postgraduate programme in Animal Science.

Firstly, congratulations in taking an important step in the transformation and development of your career by choosing the UCD Graduate programme in Animal Science. Whether you have chosen the MSc programme or the Diploma and Certificate pathway options, your journey will take you to pastures new in the pursuit of intellectual development and career fulfilment.

UCD has many strengths, including a global reputation and top ranking in terms of student employability. Of critical relevance to you is our leading academic staff with international reputations for teaching and research in their subject areas. It is these staff that will help you develop a secure foundation for your future.

In consultation with industry and other sectoral stakeholders, the taught postgraduate programme was designed to deliver the cutting-edge skills that future leaders in Animal Science will require. Leading animal scientists will need a comprehensive suite of skills including sectoral understanding with an international outlook, critical analysis, communication and innovation skills to deliver future solutions for the industry. The advanced level content will therefore position graduates for leadership roles in a dynamic and critically important sector of the global economy.

Since Covid-19, we are all adapting to new ways of working and learning and in recognition of the desire for remote and part-time learning, all programme options are delivered entirely online. This offers students a unique, flexible opportunity to learn from and engage with subject experts from anywhere in the world at their own pace.

The suite of new module options is designed to cater for all interests in Animal Science and spans core animal science subjects (Sustainable Livestock Systems, Advanced Animal Nutrition, Livestock Infection and Immunity, Advanced Animal Reproduction, Animal Genomics and others) as well as offering other modules available in the School of Agriculture and Food Science. The programme also offers a global perspective with sustainability concepts embedded throughout and reflected in new modules such as Global Food Systems. Our module on Communication and Agri-Innovation will deliver transferrable skills and ideally position students for their future careers with contributions from agri-journalists and commercial companies. No module is compulsory, and students should see this flexibility as a valuable opportunity to shape their educational experience in a way that suits them for maximum career impact.

Our ambition is for these programmes to foster your intellectual growth and develop your professional skills to position you for leadership positions in a rapidly changing sector. While each of you are travelling on a personal trajectory, key fundamental principles apply to the acquisition of any new skills: i.e. participation and practice. We cannot force the development of these skills in you – you need to engage to benefit fully from this programme. The online format challenges our traditional approaches to teaching and learning but all academic staff are keen to find ways in which you can maximise engagement and peer-learning through peer and tutor lead tutorials and asynchronous learning activities. Teamwork, collaboration, communication and innovation are essential transferrable skills to all future careers. We have designed the programme to help develop these skills, but we need your help. Please do not view this opportunity as only knowledge acquisition, it can be so much more. Early feedback from students has already demonstrated that their engagement was the key ingredient for more positive outcomes in terms of transformative learning and network building.

Now more than ever, the brightest minds are required to help meet the challenges of feeding an expanding global population in a sustainable manner. As programme director, I look forward to helping you reach your potential and making a valuable future contribution in Animal Science.

Your future starts here and an exciting journey awaits…. let's get started!

Kieran

2 PEOPLE

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ANSC40270	Advanced Animal Reproduction	**Professor Patrick Lonergan**	pat.lonergan@ucd.ie
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ANSC40290	Sustainable livestock systems	**Professor Tommy Boland**	tommy.boland@ucd.ie
ANSC40300	Livestock Infection, Immunity and One Health	**Assoc Professor Kieran Meade**	kieran.meade@ucd.ie
ANSC40310	Animal Genomics and Quantitative Genetics	**Assoc Professor Alan Fahey**	alan.fahey@ucd.ie
ANSC40320	Global Food Systems	**Professor Alexander Evans**	alex.evans@ucd.ie
ANSC40330	Research Proposal module	**Assoc Professor Kieran Meade**	kieran.meade@ucd.ie
FDSC30240	Animal Products	**Dr Ajay Menon**	ajay.menon@ucd.ie
ANSC40340	Communication & Agri-Innovation	**Assoc Professor Kieran Meade**	kieran.meade@ucd.ie
HNUT40110	Food Quality and Safety	**Dr Fiona Lalor**	fiona.lalor@ucd.ie
IA20160	Creative Thinking & Innovation	**Ms Jacinta Owens**	jacinta.owens@ucd.ie
SCI50020	Research Integrity Online	**Professor Alan Baird**	alan.baird@ucd.ie
STAT40840	Data Prog with SAS	**Dr Michael Salter-Townshend**	michael.salter-townshend@ucd.ie
VET40460	TEARAP	**Dr Arun Kumar**	arun.kumar@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 Animal Science 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: Are these courses for me?

A: Good question but not one we can answer. It depends on what excites and motivates you and where you would like to see your career develop. The MSc in Animal Science is suitable for students who wish to undertake advanced studies in pursuit of a career in the livestock sector.

Q: Do I meet the entry requirements?

A: The MSc will not be an introduction to basic animal science, and therefore foundation knowledge and a relevant Honours Level 8 degree (or international equivalent) are required.

Q: Why would I choose the MSc in Animal Science?

A: So many reasons!

Firstly, we are excited by the launch of this new MSc as our unique programme was designed after comprehensive consultation with leading stakeholders including animal nutrition and health industries.

Secondly, building on our long tradition in the delivery of leading education in Agricultural Science, we are ideally positioned with globally recognised subject leaders to deliver this brand new and exciting educational offering.

Thirdly, the agri-food sector is responding rapidly to the challenges that we face nationally and globally, and our MSc will focus on developing knowledge leaders with tailored skills and expertise to lead the next generation of solutions.

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 is the workload?

A: The Full Time MSc requires full time dedication of circa 37 hours per week and is to be completed in 3 trimesters – i.e., one full calendar year (September to August).

A: The Part Time MSc can be taken over the course of 2-4 years to facilitate work or other commitments. The actual workload each term will depend on your module choices. Minimum registration for the Part Time programme is 2 years – students will have up to 4 years in which to complete their studies thereby affording flexibility.

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. The MSc programme is 90 credits – and modules may consist of 5 or 10 credits each. So the student will 'mix and match' according to their interests to make up the requisite 90 credits.

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: What is the research proposal?

A: The research proposal is designed to help the student develop a number of relevant competencies without the need for a traditional detailed thesis. A research proposal consists of a number of components which have a broader relevance to careers other than directly in research. This includes experimental design, a distillation of relevant research, building a strong case for your proposal, improving writing skills and clarity of communication. It is also hoped that this module will foster improved familiarity in literature literacy. Working closely with the module coordinator (by email and online), the student will then be able to select a topic of personal interest or relevance and develop this theme in more detail. This module will therefore afford a student the option of additional specialisation in a core area of interest.

Q: Do I have to do a thesis?

A: No, we have included a research proposal in the course options rather than a traditional thesis. This will help deliver multiple competencies including writing and experimental design skills.

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: Where will this MSc lead me?

A: As a new Programme it is hard to be definitive, but this MSc aims to equip graduates with cutting edge skills and position them for leadership roles in a dynamic and critically important sector of the global economy. We see future roles for graduates of this programme in further education including PhD programmes nationally and abroad, Policy and advisory roles within governmental departments and in senior positions within leading nutrition, health, breeding and pharmaceutical companies.

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

A: All UCD students on the MSc Animal Science 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 for the Full Time and Part Time programmes

Programme	ECTS Credits	NFQ Level	Minimum Registration	Maximum Registration
Masters Full Time	90	9	1 year (3 Academic Terms)	1 year (3 Academic Terms)
Graduate Diploma Full Time	60	9	1 year (2 Academic Terms minimum)	1 year (3 Academic Terms)
Graduate Certificate Full Time	30	9	1 year (2 Academic Terms minimum)	1 year (3 Academic Terms)
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: When do the Animal Science Programmes start?

The Full-Time programmes commence in September. The Part Time programmes have a start date in September and January.

Q: What are the programme Fees?

A: Details on programme fees and fee payment dates can be found at: **www.ucd.ie/students/fees**

Full Time Progammes: There is a set programme fee.

Part Time Programmes: Fees are payable on a per credit basis so you can structure your fee payment schedule per Trimester based on the number of modules to which you are registered. Fees payable each term will be calculated based on the number of modules to which you are registered.

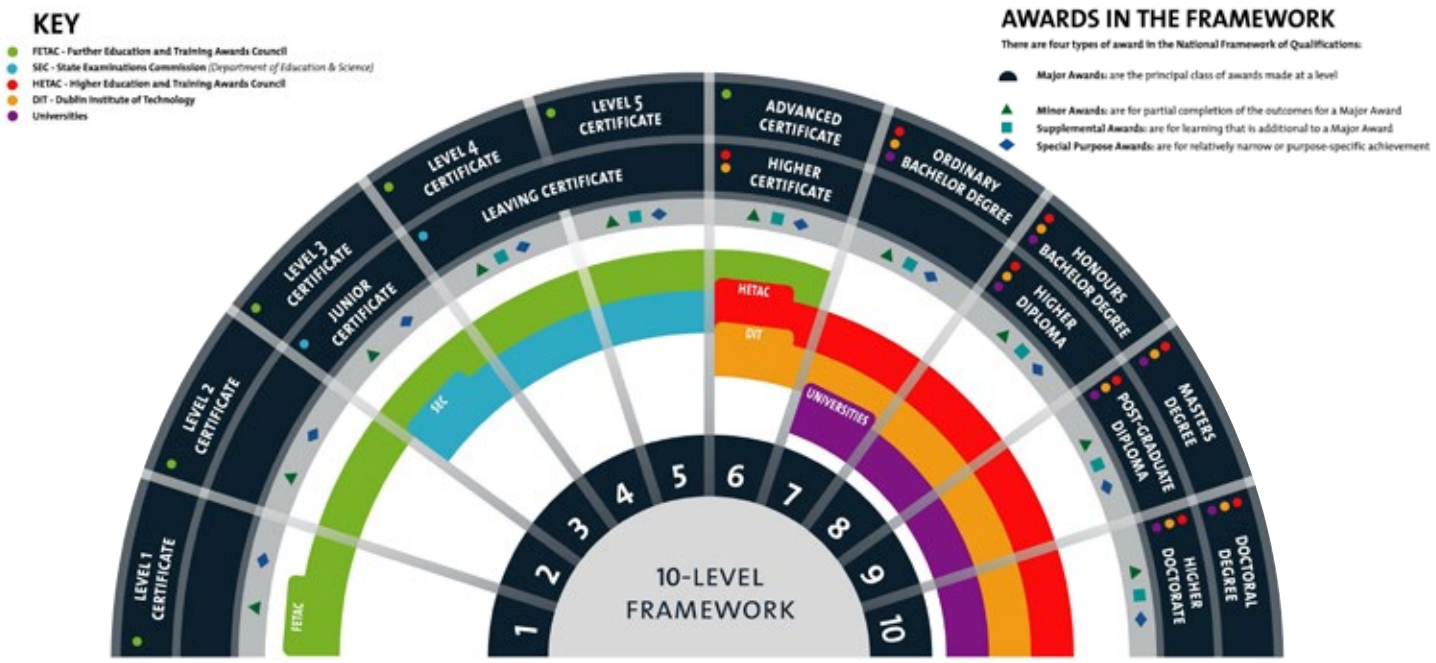
Q: Is there a maximum number of credits I can register to each Trimester?

A: Full Time Students - The recommended workload for a full-time student is 30 credits per trimester. We recommend where possible that students register for a 30/30/30 credit workload split over Autumn, Spring, and Summer Trimesters.
Part Time students - The maximum number of credits a part time student should register to in a trimester is 25 ECTS. If a student wants to exceed this workload permission from the Course Director should be sought.

Q: Is there a minimum number of credits I can register to each Trimester?

A: Full Time Students: The recommended workload for a full-time student is 30 credits per trimester. We recommend where possible that students register for a 30/30/30 credit workload split over Autumn, Spring, and Summer Trimesters

Part Time students: There is no minimum as part time students have up to 4 years in which to complete their studies. If you so wish you may decide not to register to any modules in a given trimester. In this instance, you should apply for a Leave of Absence to keep your registration record in order.



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 Animal Science 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.

6 PROGRAMME STRUCTURE

6.0 MASTERS IN ANIMAL SCIENCE (FULL TIME)

Students take 90 credits in total over this one year, 3 Teaching Trimester programme (Autumn, Spring and Summer).
Students choose modules from 2 blocks with minimum/maximum credits per block.

Block A Animal Science		
	Minimum	50 credits
	Maximum	60 credits

Block B Associated and Transferrable Skills		
	Minimum	30 credits
	Maximum	40 credits

The recommended workload for a full-time student is 30 credits per trimester. Therefore, we would recommend where possible a 30/30/30 credit workload split over Autumn, Spring, and Summer Trimesters. Please bear this in mind when selecting your modules. Please note it is possible to register to 40 credits in a given trimester.

Block A

Animal Science modules:

Select minimum 50 credits and a maximum of 60 credits.

Term Available	Module Code	Module Title	Credits
Autumn	ANSC40270	Advanced animal reproduction	10
Autumn	ANSC40290	Sustainable livestock systems	10
Autumn	ANSC40300	Livestock Infection, Immunity and One Health	10
Spring	ANSC40280	Advanced Animal Nutrition	10
Spring	ANSC40310	Animal Genomics & Quantitative Genetics	10
Spring	ANSC40320	Global Food Systems	10

Block B

Associated and Transferable Skills modules:

Select minimum 30 credits and a maximum of 40 credits.

Term Available	Module Code	Module Title	Credits
Autumn and Spring (separate)	IA20160	Creative Thinking & Innovation	5
Autumn & Spring & Summer (separate)	SCI50020	Research Integrity Online	5
Autumn & Spring & Summer (separate)	VET40460	TEARAP	5
Spring	FDSC30240	Animal Products	5
Spring	HNUT40110	Food Quality and Safety	5
Summer	ANSC40330	Research Proposal module	15
Summer	ANSC40340	Communication & Agri-Innovation	10
Summer	STAT40840	Data Prog with SAS (online)	5

6.1 GRADUATE DIPLOMA IN ANIMAL SCIENCE (FULL TIME)

Students take 60 credits over 1 year. Teaching is available in 3 Trimesters (Autumn, Spring and Summer).
Students choose modules from 2 blocks with a minimum/maximum credits per block;

Block A Animal Science	Minimum	30 credits
	Maximum	40 credits

Block B Associated and Transferrable Skills	Minimum	20 credits
	Maximum	30 credits

Block A
Animal Science modules:
Select minimum of 30 credits and a maximum of 40 credits.

Term Available	Module Code	Module Title	Credits
Autumn	ANSC40270	Advanced animal reproduction	10
Autumn	ANSC40290	Sustainable livestock systems	10
Autumn	ANSC40300	Livestock Infection, Immunity and One Health	10
Spring	ANSC40280	Advanced Animal Nutrition	10
Spring	ANSC40310	Animal Genomics & Quantitative Genetics	10
Spring	ANSC40320	Global Food Systems	10

Block B
Associated and Transferable Skills modules:
Select minimum of 20 credits and a maximum of 30 credits

Term Available	Module Code	Module Title	Credits
Autumn and Spring (separate)	IA20160	Creative Thinking & Innovation	5
Autumn & Spring & Summer (separate)	SCI50020	Research Integrity Online	5
Autumn & Spring & Summer (separate)	VET40460	TEARAP	5
Spring	FDSC30240	Animal Products	5
Spring	HNUT40110	Food Quality and Safety	5
Summer	ANSC40340	Communication & Agri-Innovation	10
Summer	STAT40840	Data Prog with SAS (online)	5

6.2 GRADUATE CERTIFICATE IN ANIMAL SCIENCE (FULL TIME)

Students take 30 credits in total over one year. Teaching is available in 3 Trimesters (Autumn, Spring and Summer).
Students choose modules from 2 blocks with a specified number of credits per block;

Block A Animal Science	20 credits

Block B Associated and Transferrable Skills	10 credits

Block A
Animal Science modules:
Students will need to complete 20 credits from this block.

Term Available	Module Code	Module Title	Credits
Autumn	ANSC40270	Advanced animal reproduction	10
Autumn	ANSC40290	Sustainable livestock systems	10
Autumn	ANSC40300	Livestock Infection, Immunity and One Health	10
Spring	ANSC40280	Advanced Animal Nutrition	10
Spring	ANSC40310	Animal Genomics & Quantitative Genetics	10
Spring	ANSC40320	Global Food Systems	10

Block B
Associated and Transferable Skills modules:
Students will need to complete 10 credits from this block.

Term Available	Module Code	Module Title	Credits
Autumn and Spring (separate)	IA20160	Creative Thinking & Innovation	5
Autumn & Spring & Summer (separate)	SCI50020	Research Integrity Online	5
Autumn & Spring & Summer (separate)	VET40460	TEARAP	5
Spring	FDSC30240	Animal Products	5
Spring	HNUT40110	Food Quality and Safety	5
Summer	ANSC40340	Communication & Agri-Innovation	10
Summer	STAT40840	Data Prog with SAS (online)	5

6.3 MASTERS IN ANIMAL SCIENCE (PART TIME)

Students take 90 credits over a minimum of 2 years registration and a maximum of 4 years registration.
Teaching is available in Autumn, Spring and Summer Trimesters each academic year.
Students choose modules from 2 blocks with minimum/maximum credits per block;

Block A Animal Science	Minimum	50 credits
	Maximum	60 credits

Block B Associated and Transferrable Skills	Minimum	30 credits
	Maximum	40 credits

The recommended maximum workload for a part-time student is 25 credits per trimester - please bear this in mind when selecting your modules.

Block A

Animal Science modules
Select minimum 50 credits and a maximum of 60 credits from this block over the 2 to 4 years of programme registration.

Term Available	Module Code	Module Title	Credits
Autumn	ANSC40270	Advanced animal reproduction	10
Autumn	ANSC40290	Sustainable livestock systems	10
Autumn	ANSC40300	Livestock Infection, Immunity and One Health	10
Spring	ANSC40280	Advanced Animal Nutrition	10
Spring	ANSC40310	Animal Genomics & Quantitative Genetics	10
Spring	ANSC40320	Global Food Systems	10

Block B

Associated and Transferable Skills modules
Select minimum 30 credits and a maximum of 40 credits from this block over the 2 to 4 years of programme registration.

Term Available	Module Code	Module Title	Credits
Autumn and Spring (separate)	IA20160	Creative Thinking & Innovation	5
Autumn & Spring & Summer (separate)	SCI50020	Research Integrity Online	5
Autumn & Spring & Summer (separate)	VET40460	TEARAP	5
Spring	FDSC30240	Animal Products	5
Spring	HNUT40110	Food Quality and Safety	5
Summer	ANSC40330	Research Proposal module	15
Summer	ANSC40340	Communication & Agri-Innovation	10
Summer	STAT40840	Data Prog with SAS (online)	5

6.4 GRADUATE DIPLOMA IN ANIMAL SCIENCE (PART TIME)

Students take 60 credits over a minimum of 1.5 years and a maximum of 4 years registration. Teaching is available in 3 Trimesters (Autumn, Spring and Summer). Students choose modules from 2 blocks with a minimum/maximum credits per block;

Block A Animal Science	Minimum	30 credits
	Maximum	40 credits

Block B Associated and Transferrable Skills	Minimum	20 credits
	Maximum	30 credits

The recommended maximum workload for a part-time student is 25 credits per trimester - please bear this in mind when selecting your modules.

Block A

Animal Science modules
Select a minimum of 30 credits and a maximum of 40 credits from this block.

Term Available	Module Code	Module Title	Credits
Autumn	ANSC40270	Advanced animal reproduction	10
Autumn	ANSC40290	Sustainable livestock systems	10
Autumn	ANSC40300	Livestock Infection, Immunity and One Health	10
Spring	ANSC40280	Advanced Animal Nutrition	10
Spring	ANSC40310	Animal Genomics & Quantitative Genetics	10
Spring	ANSC40320	Global Food Systems	10

Block B

Associated and Transferable Skills modules
Select a minimum of 20 credits and a maximum of 30 credits from this block.

Term Available	Module Code	Module Title	Credits
Autumn and Spring (separate)	IA20160	Creative Thinking & Innovation	5
Autumn & Spring & Summer (separate)	SCI50020	Research Integrity Online	5
Autumn & Spring & Summer (separate)	VET40460	TEARAP	5
Spring	FDSC30240	Animal Products	5
Spring	HNUT40110	Food Quality and Safety	5
Summer	ANSC40340	Communication & Agri-Innovation	10
Summer	STAT40840	Data Prog with SAS (online)	5

6.5 GRADUATE CERTIFICATE IN ANIMAL SCIENCE (PART TIME)

Students take 30 credits over a minimum of 1 year and maximum of 4 years registration. Teaching is available in 3 Trimesters (Autumn, Spring and Summer). Students choose modules from 2 blocks with a specified number of credits per block;

Block A Animal Science	20 credits

Block B Associated and Transferrable Skills	10 credits

Block A

Animal Science modules
Students will need to complete 20 credits from this block (minimum 1 year, maximum 4 years).

Term Available	Module Code	Module Title	Credits
Autumn	ANSC40270	Advanced animal reproduction	10
Autumn	ANSC40290	Sustainable livestock systems	10
Autumn	ANSC40300	Livestock Infection, Immunity and One Health	10
Spring	ANSC40280	Advanced Animal Nutrition	10
Spring	ANSC40310	Animal Genomics & Quantitative Genetics	10
Spring	ANSC40320	Global Food Systems	10

Block B

Associated and Transferable Skills modules
Students will need to complete 10 credits from this block. (minimum 1 year, maximum 4 years).

Term Available	Module Code	Module Title	Credits
Autumn and Spring (separate)	IA20160	Creative Thinking & Innovation	5
Autumn & Spring & Summer (separate)	SCI50020	Research Integrity Online	5
Autumn & Spring & Summer (separate)	VET40460	TEARAP	5
Spring	FDSC30240	Animal Products	5
Spring	HNUT40110	Food Quality and Safety	5
Summer	ANSC40340	Communication & Agri-Innovation	10
Summer	STAT40840	Data Prog with SAS (online)	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

ANSC40270
Advanced Animal Reproduction

Credits:	10 ECTS
Start Date	Autumn
Module Coordinator	Professor Patrick Lonergan

PURPOSE & OVERARCHING CONTENT

The ability to reproduce is a defining feature of all living organisms. However, there are many factors which impinge on reproductive success. Reproductive efficiency is the main driver of profitability in livestock production systems. Understanding the factors that regulate the reproductive axis in males and females is essential to the successful manipulation of reproduction in order to optimise reproductive efficiency. This module is designed for graduates who want to develop expertise in reproductive biology as applied to livestock production systems. The online lectures and materials will give students the necessary theoretical foundation and applied focus to critically engage with the major issues in livestock reproduction. The module will begin with an overview of the anatomy and physiology of reproduction in livestock species and then go into detail on the application of assisted reproductive technologies to animal breeding (including artificial insemination, embryo transfer, in vitro fertilisation, sex-sorted semen, oestrous synchronisation, cloning, gene editing etc). Students will be exposed to some of the latest research in the area and will deepen their knowledge by preparing a literature review on a specific topic.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Explain and understand the endocrine control of reproduction in males and females
- Understand how to achieve high reproductive performance in dairy and beef cattle herds
- Interpret and justify some of the management decisions that influence fertility in domestic animals
- Critically evaluate research relating to animal reproduction

APPROACHES TO TEACHING AND LEARNING:

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

- Lectures
- Guest lectures by external experts from academia and industry
- Practical tutorials and peer-to-peer work
- Individual and group online presentations

ANSC40280
Advanced Animal Nutrition

Credits	10 ECTS
Trimester available	Spring
Module coordinator	Dr Stafford Vigors

PURPOSE & OVERARCHING CONTENT

This module is designed for graduates who want to develop their expertise in animal nutrition as applied to livestock production systems. The online lectures and materials will give students the necessary theoretical foundation and applied focus to critically engage with the major issues in animal nutrition and in particular how novel feeding strategies can be utilised in modern production systems.

The provision of feed is by far the greatest cost of modern animal production. It is important, therefore, to be able to understand what nutrients are contained in a feedstuff, and how they are assimilated and metabolised by the animal affecting both growth and development. The rate of technological change in the feed industry over the last two decades has been impressive. Our understanding of the often complex interactions among feed and nutrient intakes, digestion, metabolism and growth and the effect of factors such as animal genotype, disease and the social and thermal environment, has increased. Also, the biotechnology industry has offered the animal and feed industries new opportunities, with the development of innovative products such as enzymes, pre- and pro-biotics, acidifiers, anti-oxidants, novel feed ingredients. Feed processing technologies have also improved. Such advancement in knowledge and technology allows for a better formulation of diets to maximise productive efficiency and to minimise the loss of nutrients via excretion.

This module addresses growth mainly in ruminant and simple-stomached animals and aims to review the fundamental concepts relevant to animal nutrition and to provide an update on recent advances in the area.

The topics covered will include, nutrient bioavailability, post-absorptive nutrient utilisation and the principles of animal growth. Moreover, practical aspects of feed processing, antinutritional factors, the use of innovative products, the prediction of bioavailable nutrient contents, and the principles of diet formulation will be covered in detail.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Fully understand the anatomical digestive characteristics of the main farm production species
- Understand how differences in digestive capacity impact the diets fed
- Evaluate key feed ingredients for ruminants and non-ruminants for nutritional quality and understand there use in diets
- Formulate diets for ruminants and non-ruminants through various life stages
- Evaluate the key interaction between host genetics, animal health and nutrient use and how this impacts diet formulation
- Critically evaluate the use of alternative/novel feeding strategies to improve the productivity and environmental sustainability of modern intensive animal production systems for both ruminants and non-ruminants
- Collaborate and communicate with peers and other stakeholders to engage and critically evaluate the latest developments in research and technology across the animal nutrition field

APPROACHES TO TEACHING AND LEARNING:

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

- Lectures
- Practical tutorials and peer-to-peer work
- Guest lectures and discussions with industry experts
- Individual and group online presentations
- Asynchronous discussion threads led by tutors

ANSC40290
Sustainable Livestock Systems

Credits	10 ECTS
Trimester available	Autumn
Module coordinator	Professor Tommy Boland

PURPOSE & OVERARCHING CONTENT

Globally Livestock systems are the major user of agricultural land, either directly through grazing/pastoral activity or as a major consumer of cereal grains, pulses, oilseeds and their by-products. Such land use activity while delivering multiple benefits to global society (food, fibre, fuel, nutrient cycling etc) is associated with various negative externalities including greenhouse gas and transboundary gas emissions, deteriorations in water quality and loss of biodiversity.

Globally livestock production is faced with numerous challenges to mitigate these and other negative externalities, while at the same time delivering on an increased global demand for food products of animal origin, and concurrently delivering a sustainable livelihood for the hundreds of millions of people involved in livestock production globally.

This module is relevant to all graduate students interested in global systems of agriculture, food and sustainability.

It is developed to give students the opportunity to learn about global livestock production systems, integration of livestock production and cropping systems, livestock production and nature and livestock production and forestry.

Students will develop there understanding of the environmental impact of livestock production systems, strategies to mitigate this environmental impact and the central role livestock production systems play in global food systems

Additionally students will develop their expertise in understanding livestock systems, in interpretation of data and opinions, and in critical thinking.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Understand global and regional livestock production systems
- Evaluate interactions among livestock production, livestock distribution and food demand challenges
- Critically evaluate the environmental impact (both positive and negative) of livestock productions systems
- Critically evaluate mitigation activities to reduce the environmental impact of livestock production systems
- Collaborate and communicate with peers and other stakeholders to engage and critically evaluate the latest developments in research and technology across livestock production systems

APPROACHES TO TEACHING AND LEARNING:

This module will be delivered through the UCD VLE system and a series of field trips and teaching will consist of:

- Lectures
- Guest lectures and discussions by area experts
- Practical tutorials and peer-to-peer work
- Individual and group online presentations
- tutorials and peer-to-peer work
- Field trips to research and commercial livestock production facilities

ANSC40300
Livestock Infection, Immunity and One Health

Credits	10 ECTS
Trimester available	Autumn
Module coordinator	Associate Professor Kieran Meade

PURPOSE & OVERARCHING CONTENT

This module is designed for graduates who want to develop their expertise in immunobiology as applied to livestock production systems. There is an urgent need to reduce the incidence of diseases across animal production enterprises to support system sustainability, and protect the food chain and human health.

The online lectures and materials will give students the necessary theoretical foundation and applied focus to critically engage with the major issues in livestock health from disease prevention to vaccine design. Emphasis will also be placed on the integration of new knowledge within a One Health framework.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Understand the animal health ecosystem in terms of stakeholders, principal livestock diseases, economic and welfare costs of disease
- Evaluate the evolution and ontology of the immune response in livestock species
- Communicate the connection between developmental programming of the immune response, the establishment of homeostasis and the primary function of the immune system in the maintenance of health
- Appreciate the role of both innate and adaptive immune system at systemic and mucosal surfaces in livestock
- Explain how the immune response can be compromised by management and various infectious agents including bacteria, viruses and parasites over the course of the animals life
- Apply theoretical knowledge to specific diseases of relevance and identify barriers to control and eradication of livestock diseases
- Collaborate and communicate with peers and other stakeholders to engage and critically evaluate the latest developments in research and technology across the livestock health spectrum
- Connect that new knowledge within a One Health framework which appreciates the inter-connectedness of animal, human and environmental health

INDICATIVE MODULE CONTENT

- The animal health ecosystem
- The evolution of the immune response and comparative immunology
- Systemic Immunity
- Mucosal Immunity
- Ontogeny and lifetime Immunity
- The health continuum
- Veterinary vaccines
- Disease surveillance and diagnostics
- Priority diseases in livestock
- Future and One Health

APPROACHES TO TEACHING AND LEARNING:

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

- Lectures (including guest lectures)
- Practical tutorials and peer-to-peer work
- Individual and group online presentations
- Asynchronous discussion threads led by tutors

ANSC40310
Animal Genomics and Quantitative Genetics

Credits	10 ECTS
Trimester available	Spring
Module coordinator	Associate Professor Alan Fahey

PURPOSE & OVERARCHING CONTENT

The module is designed for life sciences graduates who wish to develop their expertise and extend their knowledge of genomics and quantitative genetics and how these scientific fields contribute to modern livestock breeding. In recent decades, genetic improvement of domestic animals has been revolutionised through integration of genome sequence information with quantitative genetic theory. These developments, coupled with recently developed technologies such as genome editing and high-resolution phenomics, are providing the scientific tools that will underpin future breeding programmes for sustainable animal agriculture, improved animal welfare, enhanced traceability, and healthier human diets.

The learning materials for this module will provide students with the knowledge and insight to understand and critically evaluate applications of modern technologies in animal breeding programmes.

Topics covered will include:

- The structure and function of animal genomes.
- Technologies for accessing, analysing, and applying genome sequence information in animal breeding.
- Genome editing in livestock species.Integrative genomics and computational biology in domestic animals.
- Livestock evolution, biodiversity, and conservation genomics.
- Theoretical foundations of quantitative genetics and animal breeding.
- Modern genome-enabled breeding programmes in practice.
- Commercial applications of genomics in domestic animals.

LEARNING OUTCOMES:

- Understand the biology of animal genomes and how genome sequence information can be leveraged for animal breeding and genetic improvement
- Evaluate and understand how genome sequence information can be accessed at different scales and resolutions.
- Critically assess applications of genome editing in livestock species.
- Understand livestock evolutionary history, biodiversity, and the importance of genetic conservation.
- Understand the fundamental concepts, principles, and statistical framework of quantitative genetics and animal breeding.
- Evaluate modern genome-enabled breeding programmes in livestock.
- Evaluate commercial applications of genomic technologies in domestic animals.
- Collaborate and communicate with peers and other stakeholders to engage with, and critically evaluate the latest developments in animal genomics and breeding.

APPROACHES TO TEACHING AND LEARNING:

This module will be delivered through the UCD Brightspace VLE system and will consist of the following learning activities:

- Lectures (including guest lectures).
- Practical tutorials and peer-to-peer work.
- Individual and group online presentations.
- Asynchronous Discussion threads on Brightspace led by tutors.

ANSC40320
Global Food Systems

Credits	10 ECTS
Trimester available	Spring
Module coordinator	Professor Alexander Evans

PURPOSE & OVERARCHING CONTENT

Food and food security has always been important to humankind; however the nature of food availability, food production, and food supply is constantly changing. The world's food system is in disarray. One in ten people is undernourished, one in four is overweight, and more than one-third of the world's population cannot afford a healthy diet. Food supplies are disrupted by heatwaves, floods, droughts and wars but are responsible for about 30% of the world's greenhouse gas emissions.

Now more than ever we live in a global world where food is traded as a commodity, but systems that impact and interrupt this trade can have dramatic effects on the food we eat. On top of this are the complexities of consumer demands, nutrition, climate change, and sustainability.

This module is relevant to all graduate students interested in global systems of agriculture, food and sustainability.

It is developed to give students the opportunity to learn about food demand, food production, the major food commodities of the world, food waste, food safety and security, food authenticity, and food policy. It will also include food and climate change, food and biodiversity, food and energy, future foods, and food in the bioeconomy.

Students will develop their expertise in understanding food systems, in interpretation of data and opinions, and in critical thinking.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Understand the complexities of food production, distribution and consumption
- Evaluate interactions among food production, food distribution and food demand challenges
- Explain the differences among nutritional requirements, food demand, consumer behaviour for food
- Apply knowledge of different food chains and their effects on food systems
- Understand the issues around sustainable food systems
- Appreciate the challenges of food safety, security authenticity
- Weigh up the issues associated with food production, sustainability, climate change and biodiversity loss.
- Collaborate and communicate with peers and other stakeholders to engage and critically evaluate the latest developments in research and technology across food systems

APPROACHES TO TEACHING AND LEARNING:

This module will be delivered through the UCD VLE system and teaching will consist of:

- Lectures
- Guest lectures and discussions by area experts
- Practical tutorials and peer-to-peer work
- Individual and group online presentations

ANSC40330
Research Proposal module

Credits	15 ECTS
Trimester available	Summer
Module coordinator	Associate Professor Kieran Meade

PURPOSE & OVERARCHING CONTENT

This module is designed to allow for integration of previous modules studied during the course; with students applying their animal science, research design, and statistical knowledge to the research process and developing a viable, original research project.

LEARNING OUTCOMES:

On completion of this module students should be able to:

- Critically evaluate literature in a relevant area of animal science, leading to the development of a research question, aims and testable hypothesis
- Plan and design a viable, ethical and original research project using either quantitative or qualitative research methods.

APPROACHES TO TEACHING AND LEARNING:

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

- Active/task-based learning, peer and group work, critical writing, reflective learning, enquiry and problem-based learning, interactive tutorials. This module will focus on creating authentic pieces of critical writing in the shape of a literature review and a project proposal for funding. This will involve enquiry and problem-based learning, it will use peer and group work to provide feedback and this will in turn require reflective learning as the feedback is applied to improve the final work. Students will also develop critical analysis skills through the critique of sample papers.

HNUT40110
Food Quality and Safety

Credits	5 ECTS
Trimester available	Spring
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.

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,

IA20160
Creative Thinking & Innovation

Credits	5 ECTS
Trimester available	Autumn and Spring (Separate)
Module coordinator	Ms Jacinta Owens

PURPOSE & OVERARCHING CONTENT

Develop creative confidence and learn how to generate innovative ideas and concepts, individually and in a team environment.

'Creative Thinking & Innovation' at the Innovation Academy will increase your creative thinking skills, problem solving skills, team-working skills, design thinking and lateral thinking abilities through hands on exercises, tasks and challenges.

Over the course of the module, you will actively engage in generating creative solutions to problems and learn methods to evaluate these solutions. You will practice the art of storytelling through pitching ideas and creating and delivering presentations.

As part of this module, you will work in a multidisciplinary team on a real-world problem using innovation tools such as design thinking. You will actively learn good teamworking skills in a live, facilitated environment.

This module is suitable for students from any discipline, and for those with little or no prior experience of creativity or innovation processes, as well as those who know the basics but want to develop further.

UCD INNOVATION ACADEMY

At the UCD Innovation Academy, we are a group of Educator Practitioners with extensive real-world experience as academics, business and social entrepreneurs, tech thinkers, creative professionals and design thinking practitioners.

We take an action-oriented approach to learning, with a combination of individual, group and class tasks and activities, including discussions, presentations and reflection. All of our teaching is grounded in academic rigour, and our focus is on 'learning from doing' in a real-world context.
www.innovationacademy.ie

LEARNING OUTCOMES

On completion students should be able to:

- Understand the relevance and importance of creative thinking and how it can be applied in a variety of disciplines to generate solutions
- Use problem-solving tools and techniques and understand the process for initiating and using creative techniques within project structures
- Combine a variety of different tools and techniques to approach problems
- Understand the dynamics of teamwork and learn effective teamworking skills
- Develop their visual and verbal communication skills
- Practice personal reflection as a tool for continuous self improvement

INDICATIVE MODULE CONTENT

- Creative Thinking: Exploring creativity through tasks, techniques and discussion
- Idea Generation Techniques & Ideation Tools
- Design Thinking Theory and Practice
- De Bono Thinking Methods
- Teamwork Frameworks: Theory and Practice
- Tools for Reflective Practice

APPROACHES TO TEACHING AND LEARNING

All Innovation Academy modules take a 'learning from doing' approach, combining individual and group activities including presentations, discussion and reflection.

- Active/task-based learning
- Real-world challenges
- Teamwork
- Reflective Learning
- Enquiry & Problem-based learning
- Student Presentations

ANSC40340
Communication & Agri-Innovation

Credits	10 ECTS
Trimester available	Summer
Module coordinator	Associate Professor Kieran Meade

PURPOSE & OVERARCHING CONTENT

This module is designed for graduates who want to develop their communications skills as well as knowledge of the processes in developing new solutions in agriculture. There is an urgent need to foster increased innovation in the Agri sector to address the challenges we face.

The online lectures and materials will give students the necessary foundation in professional development skills, help them develop and tailor their communication skills, foster an improved understanding of the role of research and the opportunities and challenges involved in innovations within the sector.

LEARNING OUTCOMES

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

- Understand the need for tailoring communication style to suit particular stakeholder audiences.
- Understand the role of research and research literacy in discovery of new solutions.
- Appreciate the steps involved in moving from a concept to new solutions.
- Engage with past students who have taken various career trajectories.
- Demonstrate confidence in solution pitching and giving and receiving constructive criticism.
- Examine ways in which communication can be used to drive behavioral change.
- Demonstrate professional relationship skills.
- Demonstrate improved communication skills.

APPROACHES TO TEACHING AND LEARNING

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

- Lectures (including guest lectures)
- Practical tutorials and peer-to-peer work
- Individual and group online presentations
- Asynchronous discussion threads led by tutors

SCI50020
Research Integrity Online

Credits	5 ECTS
Trimester available	Autumn, Spring and Summer (Separate)
Module coordinator	Professor Alan Baird

PURPOSE & OVERARCHING CONTENT

This module is designed to help researchers in the sciences to:

- Know, understand and explain the key responsibilities they have as researchers.
- Identify the challenges they could face in meeting those responsibilities.
- Be aware of strategies for dealing with pressures and difficult situations.
- Online activity will be accompanied by workshops.

LEARNING OUTCOMES:

This course covers all stages of the research process. Information, practical advice and reflective activities in key areas:

- **Introduction:** principles and professional responsibilities, dealing with misconduct, mentoring
- **Planning:** research with human participants, conflicts of interest, workplace safety
- **Conducting:** data collection, sharing and interpretation
- **Reporting:** plagiarism, authorship, peer review
- **Responsibility to the public and society.**

STAT40840
Data Prog with SAS

Credits	5 ECTS
Trimester available	Summer
Module coordinator	Dr Michael Salter-Townshend

PURPOSE & OVERARCHING CONTENT

In this module students will learn how to manipulate data and perform statistical calculations using SAS.

LEARNING OUTCOMES

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

- Load different types of data using SAS
- Manipulate data sets using SAS
- Analyse data using suitable methods in SAS
- Plot data in using SAS

APPROACHES TO TEACHING AND LEARNING

Video lectures posted each week that walk though module content, blending theory with example exercises.

Practice problem sheets to enable self-assessment of learning outcomes. Sample solutions for these will be posted after each problem set. Coding based problem sets posted with solutions again following.

All content delivered using the VLE which includes a monitored discussion forum with topics created for each weeks lecture material and each problem set.

VET40460
TEARAP

Credits	5
Trimester available	Autumn, Spring and Summer (Separate)
Module coordinator	Dr Arun Kumar

PURPOSE & OVERARCHING CONTENT

The aim of the module is to provide an online course to meet the training requirements of the Health Products Regulatory Authority (HPRA) in the knowledge, responsibilities and regulatory requirements for conducting animal studies as laid down in Article 23 of Directive 2010/63/EU.

LEARNING OUTCOMES

Having successfully completed this module, participants should have an understanding of:

- EU-Directive 2010/63/EU on protection of animals used for scientific purpose.
- Their responsibilities and regulatory requirements when undertaking animal studies for teaching or research purposes.
- Animal welfare and application of 3R principles in their research and teaching.
- Basic principles of study design and Bio-statistics.
- Basic animal physiology.
- Competency requirement in basic and routine animal care procedures including euthanasia.
- Competency requirement in relevant experimental procedures.
- Maintenance of experiment and training records.

APPROACHES TO TEACHING AND LEARNING

The module is delivered via online using recorded lectures. A supplementary folder is included with several online resources for the students to access and engage.

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