

# MSc Digital Agriculture

One Year Full Time (September/January start)



## Introduction

The world's population is expected to grow to approx. 10 billion by 2050. This growth will result in increased demand for resources, raw materials and food. In particular, demand for food is estimated to increase by over 50% by 2050. Furthermore, the world faces intersecting challenges like climate change, exploitation of natural capital and an aging and declining rural population. To produce a "sustainable food future", the world must increase food production while cutting GHG emissions and maintaining (or reducing) the land used in agriculture. Digital agriculture could address these challenges by making the

agri-food value chain more efficient, equitable, and environmentally sustainable - before, during, and after on-farm production. The programme is aimed at students and industry professionals who wish to build their knowledge and skills-base to address the complexities of developing, deploying and managing digital technology in the agriculture sector. With a focus on design, numeracy, hardware and software technology, our students will be deeply engaged with agricultural production, and specifically technology to enhance efficiency, sustainability, resilience and reliability.

## Course Highlight

The programme is delivered by a highly research-intensive and multi-disciplinary school - Ireland's premier agri-food related research entity with excellent networks into the agri-food industry and with a particular focus on working with industry to provide sustainable technical solutions.

## Course Content and Structure

All modules are optional and will be delivered either fully online, blended (i.e., online lectures and assignments supported by occasional face-to-face tutorials), and intensive (i.e., one or two week full-time) formats. Students will be able to take themed clusters of modules (e.g. three modules of precision farming, three modules of sensing technology, three modules of computers and electronics, three modules of data science) to reflect specific technical interests or needs for upskilling.

**Research Project:** Students have the option of undertaking an applied, work related, research project in the summer trimester.

### Modules include:

- Precision Agriculture
- Precision Livestock Management
- Sensors & Sensing Systems
- Optical Sensing Technology
- Hyperspectral Imaging Remote Sensing and GIS
- Soil Technology
- Land Use & Environment
- Principles of Crop Science
- Machine Learning
- Root & Alternative Crop Production
- Advances in Crop Mechanization
- Computers & Electronics in Agriculture
- IoT-enabled Agri-Food Production
- Numerical Methods for Agriculture
- Programming with Python Advanced
- Data Analytics Fundamentals of Arable Crop Production

*For those who wish to take individual modules, but not the diploma, please contact the ADVANCE Centre - [info@advancecentre.ie](mailto:info@advancecentre.ie)*

## Why study at UCD?



### Graduate education

12,800 graduate students; 17% graduate research students; structured PhDs



### Global community

9,500 international students and a 300,000 alumni network across 165 countries



### Graduate Employability

Ranked no.1 in Ireland in QS Graduate Employability ranking



### Global careers

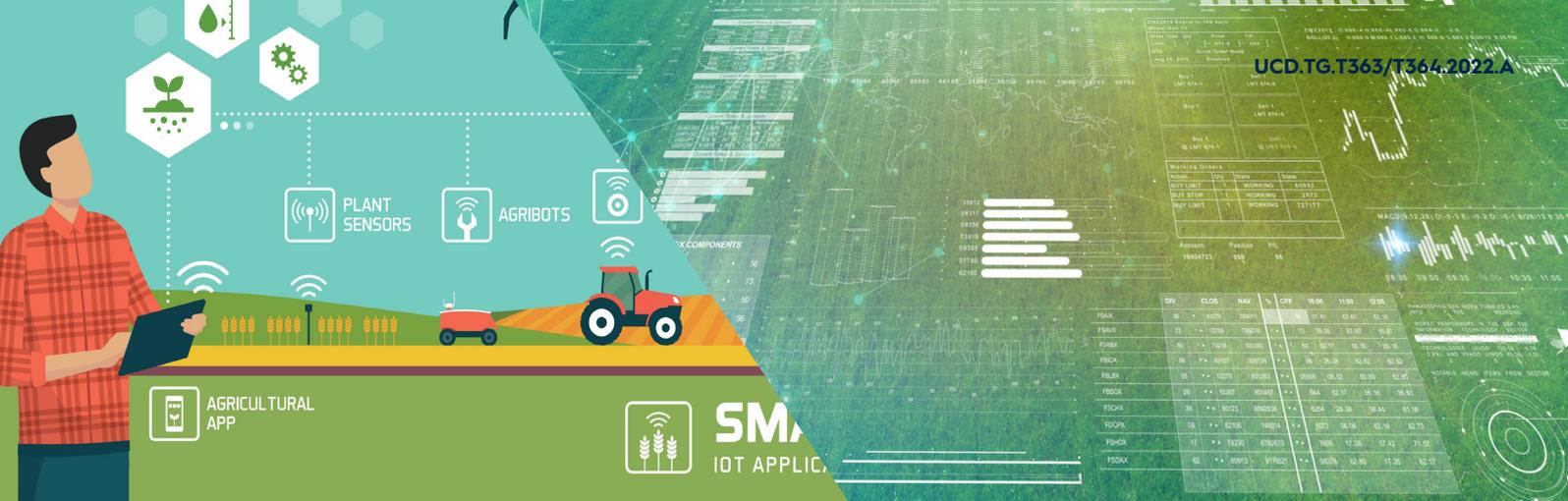
Dedicated careers support; 2-year stayback visa to work in Ireland



*Programme offered as part of the*

**THE ADVANCE CENTRE**  
for Graduate Professional Education

[www.advancecentre.ie](http://www.advancecentre.ie)



## Career Opportunities

Graduates of the MSc Digital Agriculture may find employment opportunities in the following areas:

- Agricultural machinery (e.g. Agco, CNH Industrial, Claas, John Deere)
- Precision farming (e.g. Amazone, Lemken, Rauch, Dairymaster)
- Decision support in agriculture (e.g. Corteva Digital Ag, Syngenta Global)
- IoT, data and predictive analytics (e.g. BASF, Bosch, IBM, Microsoft)

## Programme Director

Dr Dimitrios Argypoulos



## Applicant Profile

- Applicants must hold a bachelor's degree with a minimum upper second-class honours (NFQ level 8) or international equivalent in agriculture, biological science, physical science, environmental related, engineering, computer science or other appropriate discipline. Where an applicant has no formal qualification encompassing agriculture/biology, practical knowledge of, and experience in, agriculture will be required.
- Applicants whose first language is not English must also demonstrate English language proficiency of IELTS 6.5 (no band less than 6.0 in each element), or equivalent.

### International Fees and Scholarships

Tuition fee information is available on [www.ucd.ie/fees](http://www.ucd.ie/fees). Please note that UCD offers a number of graduate scholarships for full-time, self-funding international students, holding an offer of a place on a UCD masters programme. Please see [www.ucd.ie/global/scholarships/](http://www.ucd.ie/global/scholarships/) for further information. Also apply for our College scholarship [www.ucd.ie/eacollege/study/noneuscholarships](http://www.ucd.ie/eacollege/study/noneuscholarships)

### Related Masters Programmes of Interest

- MSc Environmental Technology
- MSc Sustainable Energy & Green Technologies

Rapid advances in computing technologies are leading to radical transformations across a multitude of industry sectors. Data analytics, machine learning, and artificial intelligence offer new solutions to challenges in sectors including agriculture. Although this degree is new within UCD, Digital Agriculture is recognised as one of the most critically important technical disciplines supporting the use of new and advanced technologies integrated into one system. The MSc programme provides students with an understanding of the tools that digitise data capture relating to the environment and activity (sensor technologies and systems), move the data (accumulation networks), store the data (databases), analyse data to gain insights (models and AI), share the resulting information along the agricultural value chain (distribution networks) and provide actors and stakeholders access to the digital chain (interfaces).

### CONTACT US

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### APPLY NOW

This programme receives significant interest so please apply early online at [www.ucd.ie/apply](http://www.ucd.ie/apply)