

MSc Digital Technology for Sustainable Agriculture

One Year Full Time (September 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. 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 technologies could address these value chains more efficiently, equitably,

and environmentally sustainably - before, during, and after on-farm production.

The programme is aimed at students 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, and hardware software technology, our students will be deeply engaged agricultural with 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. The Programme Director, Dr Dimitrios Argyropoulos has won numerous prestigious research and innovation awards from the European Commission on sustainable and digitized agri-food value chains.

The programme also offers hands-on experience on a range of novel digital technology, training in state-of-the-art labs and applied research in a real life environment at the Lyons Research Farm.

Course Content and Structure

All modules are optional and will be delivered mainly face-to-face including 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 will undertake an applied, work related, research project in the summer trimester.

Modules include:

- Data Programming with Python
- Crop technology and Mechanisation
- Soil Technology
- Hyperspectral Imaging
- Remote Sensing and GIS for Decision Making
- Computers and Electronics in Agriculture
- Numerical Methods for Agriculture
- Sensors and Sensing Systems
- Optical Sensing Technology
- Precision Agriculture
- Precision Livestock Management
- IoT enabled Agrifood Production

For those who wish to take individual modules, but not the course, please contact the ADVANCE Centre - 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



Global Profile

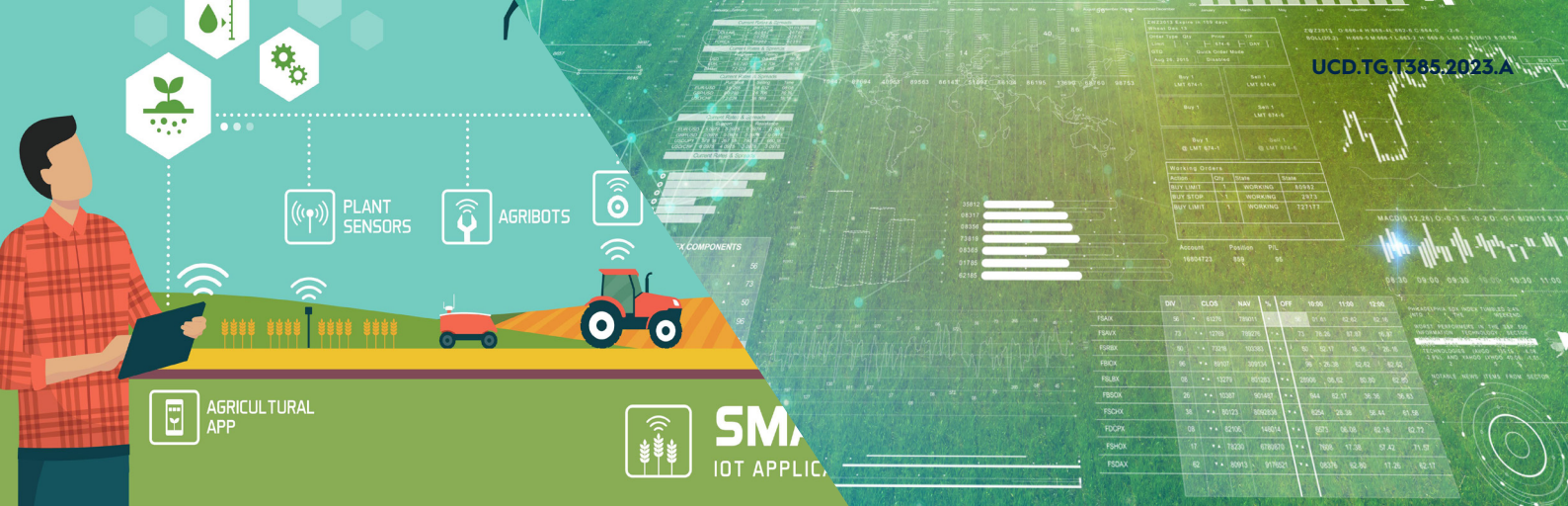
UCD is ranked in the top 1% of higher education institutions worldwide



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



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 Argyropoulos



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 considered.
- 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. 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/ for further information.

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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