UCD DUBLIN

UCD Micro-credentials
UCD Micrichreidiúntí

Sustainability Implementation Micro-credentials

Short, industry-aligned, flexible and accredited way to quickly upskill and boost your career prospects.

50% & 80% Learner Fee Subsidy Available

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HEA HIGHER EDUCATION AUTHORITY
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HCI Human Capital Initiative

UCD Micro-credentials
UCD Micrichreidiúntí

MICRO CREDS

UCD Micro-credentials

What are Micro-credentials | The UCD Student Experience

Micro-credentials are short, accredited, flexible, industry-aligned courses, that give learners the opportunity to upskill in highly specialised areas. The content for micro-credentials in UCD is developed by the University's world-class academic faculty.

When you enrol on a UCD micro-credential you become part of the UCD community of students and alumni. You receive a UCD student card and gain access to UCD's range of amenities such as the Library, Gym and more.

Sustainability Implementation Micro-credentials

Delivered by the UCD School of Biosystems and Food Engineering, these short courses are designed to bridge the gap between sustainability knowledge and practical engineering skills. These modules address critical industry needs, tackling documented skills gaps and labour shortages in areas related with the assessment, quantification, analysis, and implementation of sustainable systems and practices.

Enhance your knowledge in:

- Alternative Proteins for Sustainable Food
- Biomass Innovation and Business
- Carbon Footprinting
- How Sustainable is my Food
- Systems Innovation for Sustainable Farming

Benefits of UCD Micro-credentials

Industry aligned design and delivery

A fast, effective and reliable way to provide professional growth and development opportunities for your workforce.

Short, flexible upskilling opportunities

Designed for busy professionals looking to upskill in highly-specialised areas. Online and blended courses available.

Quality assured, accredited courses

Developed and delivered by UCD's leading academic faculty. Courses are accredited and provide learners with ECTS.

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Alternative Proteins for Sustainable Food Systems Micro-credential

15th May 2025
Online | 10 Weeks
Level 8 | 5 ECTS

Course Leader: Dr. Camila Perussello

80% Fee Subsidy
Was: €650, Now: €130
for eligible learners

Eligibility

Application Deadline: 3rd May 2025 - Limited Places Available

OVERVIEW

gfi / Good Food Institute Europe

Developed in collaboration with The Good Food Institute Europe, this module provides an in-depth exploration of alternative proteins and the rationale behind animal-free products, focusing on the technologies and materials used to produce foods from plants, algae, fungi, precision fermentation, and cell agriculture. Topics cover both conventional and novel food technologies, the environmental impact of agrifood production, principles of sustainable food production and the circular bioeconomy, as well as essential health and ethical considerations.

Through a combination of lectures, group activities, expert guest presentations, and continuous assessments, the module offers a comprehensive overview of the challenges and opportunities within this rapidly evolving sector. While focused on food applications, non-food uses of alternative proteins are also briefly addressed.

WHAT WILL I LEARN?

On successful completion of this micro-credential, you will be able to:

01 Describe key technologies and materials used in the production of alternative protein foods.

02 Understand the environmental footprint of food products and employ systems-thinking to propose sustainable food solutions.

03 Explain the social and environmental issues associated with conventional protein sources, including human and animal rights considerations.

04 Outline the benefits and limitations of alternative proteins in relation to the products they aim to replace.

05 Identify emerging trends in the alternative protein sector in Europe and globally.

SCAN FOR MORE

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Carbon Footprinting Micro-credential

September 2025
Online | 12 Weeks
Level 9 | 5 ECTS

Course Leader: Dr. Fionnuala Murphy

Full Fee: €875

OVERVIEW

This module introduces the principles, methods and application of carbon footprinting methods for the assessment of products in line with International Standards (ISO 14067). The module will be based on the standard requirements and guidelines for quantification of the carbon footprint of products, including; Goal and Scope setting, Life Cycle Inventory Analysis, Reporting and Review.

This module in sustainability assessment, will equip students with the skills to calculate and report evidence-based environmental footprints in compliance with ISO standards. Assessment strategies will encourage the development of the core competencies e.g. data acquisition, analysis and interpretation. Students will be ready to apply their skills within companies, SMEs, local authorities, consulting companies etc., to drive the transition to a zero-carbon economy.

WHAT WILL I LEARN?

On successful completion of this micro-credential, you will be able to:

01 Define an appropriate goal and scope for the assessment of a carbon footprint of a product.

02 Review data sources and assemble a representative data inventory or a specific product.

03 Develop an excel-based model for the quantification of a carbon footprint of a product.

04 Report the carbon footprint of a product in line with international standards.

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MICRO CREDS

Systems Innovation for Sustainable Farming Micro-credential

May 2025 | 10 Weeks
Online + Site Visits
Level 9 | 5 ECTS

Course Leader: Dr. Tamíris Da Costa

Full Fee: €875 ***(IKC3 100% Funding Available- Limited number of places)***

OVERVIEW

The System Innovation for Sustainable Farming module is designed to empower participants to tackle complex sustainability challenges in farming systems through collaborative innovation and solution creation. Agriculture faces a growing need for systemic change to address environmental degradation, resource inefficiencies, and social impacts. This module equips participants with the tools and mindset needed to develop impactful, interdisciplinary solutions for these challenges, fostering a culture of sustainability and innovation. Each year, the module focuses on a specific challenge, offering a hands-on, real-world context for learning and application. Challenges may include topics such as the underutilization of agri-food resources, improving biodiversity in farming systems, or reducing greenhouse gas emissions from agricultural practices. This year, the module explores the issue of underexplored agri-food resources using industrial hemp as a case study to examine how the crop can be employed to create sustainable solutions across diverse sectors.

WHAT WILL I LEARN?

On successful completion of this micro-credential, you will be able to:

01 Sensemaking: Understanding the complexity of the challenge and its broader system.

02 Ideation: Generating innovative solutions through design thinking and collaboration.

03 Sustainability Assessment: Evaluating the environmental, economic, and social impacts of proposed solutions using life cycle thinking.

04 Communication & Action Planning: Developing actionable strategies and engaging with stakeholders to scale solutions effectively.

Register Your Interest

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Sustainable Energy & Environmental Impact Micro-credential

9th September 2025
12 Weeks | Online
Level 9 | 10 ECTS

Course Leader: Professor Kevin McDonnell

Full Fee: €875

OVERVIEW

Part 1: Worldwide importance of energy systems, historical and current energy perspectives, concepts and applications of energy systems. Estimation and evaluation of energy resources.
Part 2: Sustainable energy systems; approaches to energy systems analyses and sustainability metrics. Biological Carbon Capture Storage, including the following processes: soil carbon, CO2 to energy, Forests & forest ecology, Digestate from Anaerobic Digestion (AD) process, Biochar, Biomass to oil.
Part 3: Comprehensive overview of the principal types of renewable energy-including solar, thermal photovoltaics, bioenergy, hydro, tidal, wind, and wave. In addition the underlying physical and technological principles of renewable energy systems and the future prospects of different energy sources. Energy efficiency analyses including energy balance, cost-benefit analysis and cost-efficiency analysis of various energy scenarios and renewable energy choices.

WHAT WILL I LEARN?

On successful completion of this micro-credential, you will be able to:

01 Demonstrate knowledge of the historic evolution of energy systems including fossil fuel energy systems.

02 Evaluate the worldwide importance of energy systems, energy use and associated world trends, and factors which influence them.

03 Critique the knowledge and rationale underpinning sustainable energy systems

04 Investigate the potential renewable energy systems including the role of biological carbon capture storage to contribute to a sustainable energy future.

05 Analyse the fundamentals of renewable energy technologies and systems.

06 Apply knowledge, understanding and problem solving abilities to construct energy efficiency analyses in broader contexts.

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MICRO CREDS

Biomass Innovation & Business Micro-credential

January 2026
Online | 12 Weeks
Level 9 | 5 ECTS

Course Leader: Dr. Ronald Halim

Full Fee: €895

OVERVIEW

This module will examine biorefinery systems for the production of bio-based products and bioenergy from a range of feedstock. Unit operations associated with pre-treatment, processing and separation/post-treatment steps will be reviewed. Various thermochemical, biological, and chemical pathways for the conversion of biomass into bioenergy will be critically analyzed, particularly in terms of sustainability and commercial viability. A number of national and EU biorefinery projects currently being led or carried out at UCD (e.g. in grass biorefinery, in microalgae fuel production) will be presented by scientists carrying out the research, enabling cross fertilization of ideas and enrichment of classroom learning. In addition, the module will consider innovation and market development challenges to bioeconomy implementation, integrating classroom learning into development of a bio-based product of choice. The module will culminate in the development of a business plan for the said bio-based product and a mock business pitch in front of a team of academics and industry representatives.

WHAT WILL I LEARN?

On successful completion of this micro-credential, you will be able to:

01 Define and evaluate a biorefinery in terms of efficiency, energy balance and mass balance.

02 Describe conversion technologies for the production of bioenergy from a range of feedstock and critically assess their sustainability and entry barrier.

03 Describe and assess key conversion technologies for the production of biobased products from a range of feedstock and determine their challenges and market opportunities.

04 Analyse the impact of innovation and entrepreneurship in supporting the development of the bioeconomy.

05 Develop a business plan and presentation pitch for a bio-based product of choice in a group setting, simulating seed-funding process by venture capitalists.

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How Sustainable is my Food? Micro-credential

January 2026
Online | 12 Weeks
Level 7 | 5 ECTS

Course Leader: Dr Tamíris Da Costa

Full Fee: €665

OVERVIEW

There is now widespread recognition that the global food system is unsustainable, particularly in the context of climate change. This means it is responsible for adverse environmental and social impacts. An important question each individual should ask, and answer, is: how sustainable is my food?

This module will explore the evidence to help us answer this and related questions including:

- Is the food we choose to eat contributing to climate change and causing impacts, in Ireland and beyond, that will result in future generations inheriting a significantly degraded environment?
- Is the food we eat supplied to us at prices we are willing to pay due to social exploitation?
- Is the food we have access to needlessly wasted?

Module participants will also examine their own diet and work out what kind of impacts they have. Finally, we will explore the possibility of fixing the food system so that we can eat sustainable food.

WHAT WILL I LEARN?

On successful completion of this micro-credential, you will be able to:

01 Explain the difference between a food item, a meal and a diet.

02 Outline the reasons for considering both sustainability and nutrition when evaluating which foods to eat.

03 Explain the environmental impacts caused by the food system, and the choice of foods you eat.

04 Record and evaluate the food you eat and identify options to reduce the adverse impacts of your food choices.

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Learner Fee Subsidy

Many UCD Micro-credentials are funded under the HCI Pillar 3 Learner Fee Subsidy to enable more learners to address critical skills gaps and engage with lifelong learning through micro-credentials. The HCI Pillar 3 Micro-credential Learner Fee Subsidy is funded by the Higher Education Authority (HEA) and the Department of Further and Higher Education, Research, Innovation and Science. Learner Fee Subsidies are available on identified micro-credentials only and in fixed numbers from March 2024 (subject to availablity). Please check our website for funding information.

Check your eligibility:

UCD Micro-credentials –Solutions for Employers

Are you struggling to recruit or retain staff with the skills you require? UCD micro-credentials can help in the rapid up-skilling of new staff, as well as providing a means of showing existing staff that you are invested in their professional growth and development.

- **Unlock Employees Potentials with Upskilling Opportunities**
- **Incorporate micro-credentials into your onboarding strategy**
- **Retain talent by providing professional growth and development opportunities**

Collaborate With Us

UCD prides itself in being an educational institution that pioneers research, innovation and strong industry alliance. If you are interested in collaborating with us in the development of micro-credentials please email *microcredentials@ucd.ie*.

UCD Micro-credenitals are developed with support form

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+353 (0) 1 716 7569

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