

MSc Advanced Artificial Intelligence

1 Year Full Time

Course Code: T413



This course is designed for individuals with a basic understanding of AI who are eager to delve into cutting-edge topics. It offers an excellent opportunity to explore the latest advancements in machine learning, including deep learning, generative AI, large language models and optimisation. Students will learn to use their AI skills ethically and responsibly. Students on this course will also be taught to apply their knowledge to real-world challenges in computer vision, healthcare, speech/audio, time series and recommender systems. They will learn from world-class faculty renowned for their groundbreaking AI research and immerse themselves in a vibrant community of like-minded peers.

The UCD School of Computer Science boasts over 20 faculty members actively engaged in AI research. In collaboration with our esteemed research and innovation centres—Insight, ML-Labs, and CeADAR—we form Ireland's leading hub for AI research. We are poised to provide cutting-edge AI education, empowering students to assume leadership roles in this transformative field.

Course Content and Structure

90 CREDITS
Taught Masters

=

60 CREDITS
Taught Modules

+

30 CREDITS
Research Project, Internship or Dissertation

Modules and Topics (Subject to change and are not guaranteed by UCD)

Autumn Trimester

Core modules

- Foundations of Deep Learning
- Applied AI in Vision and Imaging
- Responsible Artificial Intelligence
- Optimisation
- Advanced Machine Learning

Option modules

- Artificial/Human Intelligence
- Human-Centered AI

- Introduction to Quantum Computing

Spring Trimester

Core modules

- AI and Ethics
- Advanced Generative AI and LLMs
- ML System Deployment

Option modules

- AI for Health
- AI for Time Series
- Speech and Audio
- Recommender Systems
- Information Visualisation (Blended Delivery)

- Quantum Machine Learning
- Optimization Algorithms

Summer Trimester

In their final trimester, students will do one of 3 options:

- Internship
- Dissertation
- Machine Learning Project

Faculty Profile

Dr. Deepak Ajwani
UCD School of Computer Science

My research focuses on leveraging machine learning techniques for solving combinatorial optimisation problems. My research group has developed a number of solutions that integrate algorithmic insights and learning techniques to effectively solve large and complex instances of optimisation problems. For instance, we developed a solution to improve generalisation abilities of deep reinforcement learning approaches and graph neural networks for solving various vehicle routing problems.

Career Opportunities

Ireland's vibrant tech industry, coupled with the growing demand for AI expertise, offers exciting career prospects for our MSc in Advanced AI graduates. From cutting-edge research roles in academia to high-demand industry positions, there is a wide range of possibilities.

AI careers are highly sought-after with intellectually stimulating work and ample opportunities for advancement. Our MSc course equips graduates to excel in diverse roles, including data science, data analysis, business intelligence, machine learning engineering, AI ethics, and AI product management. This course is also a stepping stone for PhD research.



Enquiries

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Entry Requirements

Entry requirements are listed on the course web page.

Applying to UCD

This course will receive significant interest so please apply early online at www.ucd.ie/apply

