Computing, Digital and Data
Technological University Dublin, Ireland

T U DUBLIN
OLLSCOIL TEICNEOLAÍOCHTA
BHAILE ÁTHA CLIATH

TECHNOLOGICAL
UNIVERSITY DUBLIN

Masters Programmes

MSc in Applied Cyber Security

MSc in Applied Mathematics

MSc in Computer Science (Advanced Software Development)

MSc in Computer Science (Data Science)

MSc in Computing (Human Centered Artificial Intelligence)

Masters Qualifier Programme

Study in Ireland

Postgraduate study in Ireland can be a life changing experience for you personally and for your future professional career.

You will get an education through English in a country that is at the the centre of Europe's culture and economy. After graduation, you may become eligible for a post-study stay visa of up to 24 months.

Ireland is a beautiful country with a thriving technology sector. Over 900 Information and Communications Technology and Software Companies employ technology professionals in Ireland. Multinational companies with major operations in Ireland include Adobe, Airbnb, Apple, Facebook, Google, LinkedIn, Microsoft, Oracle, Salesforce, SAP, Twitter.

Our capital city, Dublin, is home to over 1 million people including 32,000 international students. It offers a rich cultural experience to its residents and visitors with a history dating back over 1000 years. Because of its importance to the global technology sector, Dublin has been called the "Silicon Valley of Europe".

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Study in Technological University Dublin

Technological University Dublin is Ireland's first and largest Technological University (founded by bringing together 3 established institutions) and the largest source of Information and Communications Technology graduates for the thriving multi-national technology sector in Ireland.

Our University has the first dedicated Faculty of Computing, Digital and Data in Ireland, with four Schools focussed on developing highly skilled graduates in Computer Science, Enterprise Computing and Digital Transformation, Informatics and Cybersecurity, and Mathematics and Statistics.

Graduates of our programmes in Technological University Dublin are equipped with excellent technical skills as well as the interdisciplinary and professional skills needed to work effectively with others, to think critically, to communicate with impact, and to act socially responsibly.

Our graduates are in high demand by industry in Ireland and internationally, where they get the opportunity to pursue rewarding careers as computer scientists, mathematicians, software engineers, data scientists, cyber-security experts, digital transformation leaders - and many others.

Masters Qualifier Programme (Online or In-Person)

This Masters Qualifier programme is designed to offer graduates of non computing disciplines the opportunity to acquire the core knowledge of computing concepts necessary to be eligible for entry to the Masters programmes in Computing in the Faculty of Computing, Digital and Data. The philosophy behind the qualifier is that graduates from other disciplines will have developed significant transferable skills in analysis, communications and independent learning and so will be in a position to learn a focused subset of computing knowledge quickly.

Graduates of the Masters Qualifier gain a Diploma in Fundamentals of Computing. Those who pass all modules and achieve an overall average mark of 60% can progress directly to Computing Masters programmes in TU Dublin.

Course Content

On the programme, you will study modules including Object-Oriented Software Development; Information Systems; Architecture, Operating Systems and Networks; Web and User Interface Design; and Systems Analysis and Testing.

Duration: 4 months
Start Date: September 2024 or February 2025.
Method of Delivery: This programme is available in both online/remote delivery and in-classroom delivery. Applicants can choose which mode of delivery they would prefer when making their application.
Campus: Grangegorman
Fees: €7,500 (for Non-European Union Applicants)

Contact Details & How to Apply

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MSc in Applied Cyber Security

The Master of Science in Computing in Applied Cyber Security is designed to produce highly knowledgeable and skilled graduates to counter the cyber security threat. This course focuses on developing hands-on skills backed by theoretical knowledge. An essential part of the master's degree is the creation of a body of work presented as a thesis which demonstrates ability in research methods, analytics and report writing. The graduates of this course will be independent learners, good problem solvers and experienced researchers.

Students on the Master of Science in Computing in Applied Cyber Security will also have the opportunity to take part in Capture-the-Flag competitions and through their course work, engage with real world problems with companies so that graduates from the programme have the necessary skills to make a difference in the work place.
The course is suitable for both entrants to a new discipline that require a broader range of taught modules to familiarize themselves with the skills and knowledge of the discipline and for specialist employees who want to up-skill in their specialist areas and require research skills.
The Master of Science in Computing in Applied Cyber Security is of particular value to holders of a primary degree in computing, IT, or equivalent, working as IT professionals. It is also of value to individuals with a computing degree background who wish to develop their career towards working within a research-oriented environment at a postgraduate level.

Career Opportunities

The Master of Science in Computing in Applied Cyber Security will give the skills and knowledge to secure business and personal data and allow graduates to work as security professionals in any of the business and industry sectors. Former graduates currently work in Deloitte, Integrity360, Fidelity Investments, Triology, Forcepoint, Rits, Espion, BH-Consulting, Liberty IT, Cobalt Technology, Ward Solutions and larger international companies like Qualcomm, IBM, Deloitte, EY, KPMG, Grant Thornton, Amazon, Google, Microsoft, Ericsson, Zurick Insurance and many more.

Course Content

Modules include Digital Forensics; Secure Communication and Cryptography; Network Security; Research Skills and Ethics; Biometrics; Secure Programming; Application Security; Business Continuity and Cloud Security; Cyber Crime Malware; and Security Intelligence.

Duration: 1 year
Start Date: September 2024 or September 2025
Method of Delivery: Blended
Campus: Blanchardstown
Fees: €14,500 (for Non-European Union Applicants)

MSc in Applied Mathematics

The MSc in Applied Mathematics offers a broad range of topics in applied mathematics and statistics and is suitable for applicants from a wide variety of backgrounds. It equips graduates with the knowledge and skills to apply mathematics and statistics in an impactful and transformative way and to work in the most dynamic sectors. Applicants require a primary degree at a second-class or higher classification and will be drawn from computing, engineering, mathematics, physics, statistics and other scientific and numerate backgrounds.

Applied Mathematics and Statistics are fundamental to understanding processes, systems and data and to the development of new and emerging technologies. The MSc in Applied Mathematics is designed to cater for those who wish to gain an advanced level of mathematical and statistical knowledge and combine it with insight and proficiency in mathematical modelling and methodologies. The practical and transferrable skills acquired in this programme allow our students to make a significant positive impact, solving problems in diverse, real-world contexts.

Career Opportunities

Graduates of the MSc in Applied Mathematics will be flexible, highly-qualified, technical professionals with advanced analytical and problem-solving skills who are able to apply their knowledge in a wide range of sectors, such as, climatology, epidemiology, systems biology, machine learning and artificial intelligence. In particular, graduates of this course are well equipped for high-level careers across industry and government organisations, for example, becoming Data Analysts, Biostatisticians, Epidemiological Modellers, Risk Analysts, Supply Chain Analysts, Research Analysts.

Course Content

The course comprises a student workload of 90 ECTS credits which includes a major project worth 25 ECTS credits. Students also undertake a Global Citizenship in the Workplace module which develops the knowledge and skills required to lead change in diverse workplaces and systematically approach global challenges.

The topics studied include biomathematics, numerical methods with machine learning for differential equations, regression modelling and computational statistics. There is a particular emphasis placed upon mathematical and statistical modelling through case studies and our students become proficient in a range of software.

Duration: 1.5 years
Start Date: September 2024 or September 2025
Method of Delivery: Blended – a mix of online, on-campus & hyflex.
Campus: Grangegorman
Fees: €21,750 (for Non-European Union Applicants)

**Contact Details
& How to Apply**

MSc in Computer Science
(Advanced Software Development)

The MSc in Computer Science (Advanced Software Development) produces graduates with the knowledge and skills to develop the complex software solutions that organizations need to compete in the emerging global digital economy.

The target audience is those with an undergraduate qualification in computer science or software development. Students will study advanced technical modules in programming, design, databases, architecture and web development to acquire the technical knowledge needed to practice as software developers working on leading edge development projects. In addition students will be equipped with key professional, technical communications skills needed to practice as a professional in the computing industry.

Career Opportunities

Graduates completing the MSc will be qualified to take up strong technical roles in software development teams in a range of organisations. Specific opportunities include: software developer, software engineer, test engineer, software designer, systems analyst, web developer, technical consultant.

Course Content

Specialist Core Modules

Programming Paradigms: Principles & Practice
Software Design
Advanced Databases
Systems Architectures
Web Application Architectures
Secure Systems Development

Critical Skills Core Modules

Research Writing & Scientific Literature
Research Methods and Proposal Writing
Research Project & Dissertation or a Team Project

Option Modules

Natural Language Technologies
Geographic Information Systems
Universal Design
Programming for Big Data
Problem Solving, Communication and Innovation
Digital Ethics
User Experience Design
Deep Learning
Speech & Audio Processing

Students can also take specialist core modules from the MSc Computer Science (Data Science) as option modules, subject to availability and schedules.

Duration: Option to complete in 1 year or 1.5 years
Start Date: September 2024 or September 2025
Method of Delivery: On-Campus
Campus: Grangegorman
Fees: €21,750 (for Non-European Union Applicants)

**Contact Details
& How to Apply**

MSc in Computer Science (Data Science)

The MSc in Computer Science (Data Science) course aims to produce graduates with the knowledge and skills to work with large amounts of raw data and extract meaningful insights from it. Graduates are equipped with deep technical skills (in data management, data mining, probability and statistics, and machine learning), but also with the softer skills (in communications, research and problem solving) required to work effectively within organisations.

Career Opportunities

Data Science has been highlighted in a range of recent reports as an area of strategic importance both nationally and internationally. Areas in which opportunities for data analytics practitioners exist include retail, financial services, telecommunications, health, and government organisations. Specific roles include but are not limited to: Data Analytics Consultant, Data Scientist, Data Analyst, Data Architect, Database Administrator, Data Warehouse Analyst, Business Intelligence Developer, Business Intelligence Implementation Consultant, Business Analyst, Reporting Analyst.

Course Content

Specialist Core Modules

Probability & Statistical Inference
Machine Learning
Working with Data
Data Management
Data Mining
Data Visualisation

Critical Skills Core Modules

Research Writing & Scientific Literature
Research Methods and Proposal Writing
Research Project & Dissertation or a Team Project

Option Modules

Natural Language Technologies
Geographic Information Systems
Universal Design
Programming for Big Data
Problem Solving, Communication and Innovation
Digital Ethics
User Experience Design
Deep Learning
Speech & Audio Processing

Students can also take specialist core modules from the MSc Computer Science (Advanced Software Development) as option modules, subject to availability and schedules.

Duration: Option to complete in 1 year or 1.5 years
Start Date: September 2024 or September 2025
Method of Delivery: On-Campus
Campus: Grangegorman
Fees: €21,750 (for Non-European Union Applicants)
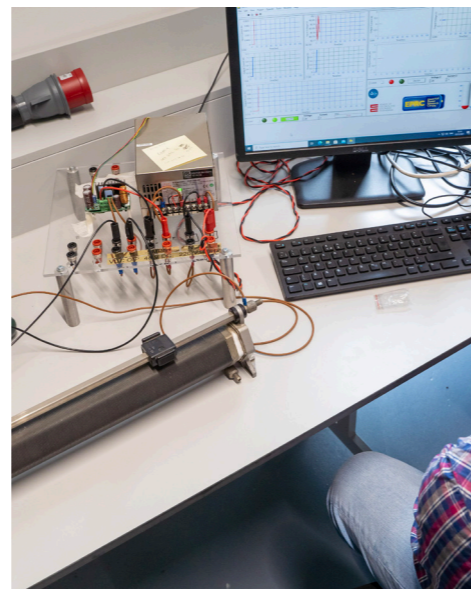
Contact Details & How to Apply

MSc in Computing (Human Centered Artificial Intelligence)

Industry, Businesses and Organisations need skilled AI specialists who can help develop their AI capability right now. The Human Centred AI Programme gives you the most up-to-date set of skills in modern AI technology from modelling through design and deployment in practice.

However safeguards for people are needed where AI is created and deployed. The EU AI act and Liability directive will punish those organisations who are careless in deploying AI. India has introduced initiatives and guidelines for the responsible development and deployment of AI technologies so Indian multi-nationals are well aware of the need for Responsible AI skills from graduates. This is a worldwide phenomenon.

The MSc in Computing in Human Centred Artificial Intelligence gives a full grounding in Machine Learning, Deep Learning and Future techniques which allow you to create and deploy AI solutions that are trustworthy, transparent and compliant with upcoming regulations.

Special Features

Designed by a European consortium of universities, research centres and SMEs (https://humancentered-ai.eu/). You will have the opportunity to select projects which come from real industry partners. There is also the opportunity to travel and collaborate with students from universities across the partnerships in Budapest (HU), Naples (IT) and Utrecht (NL).

Career Opportunities

In addition to typical industry roles such as AI developer, AI analyst, Data Scientist, some of our recent graduates have obtained roles such as AI Policy Advisor for government and Crime Analyst for police forces.

Course Content

You will study the following modules:

Statistics
Data Analysis and Programming
Artificial Intelligence and Machine Learning Modelling
Ethics & IT
Research Methods and Proposal Writing
Future of Artificial Intelligence and Learning
Society and AI: Risk and Compliance
Human Centric Deep Learning
Research Thesis (Human Centred AI)

Duration: Option to complete in 1 year or 1.5 years
Start Date: September 2024 or September 2025
Method of Delivery: Blended
Campus: Grangegorman
Fees: €14,500 (for Non-European Union Applicants)

Contact Details & How to Apply

hcaim
human centred
artificial intelligence
masters

Hear from our Students

"My master's journey at TU Dublin has been amazing. All the curriculum that I studied during my course was exactly aligned to the industrial market skills. The staff has lots of professional connections, such that they organised four Industrial Visit trips to the cyber security companies and also, arranged an internship program for me during the course. After completing my course, I continued working as a permanent employee in the cyber security operations domain. The International Students department in the University was very friendly. They have always been supportive in areas like healthcare, immigration, housing and accommodation."

Revanth Kumar
Masters in Applied Cyber Security
India

"I chose this Masters for the strong focus on ethics and the social impact of Artificial intelligence. The interdisciplinary nature of the programme gives you an edge compared to other AI students. The small class sizes all for open discussions and close communication with your professors, and there also a strong connection with the industry and professionals."

Cloë van Geest,
Msc Human Centered Artificial Intelligence

"This course prioritises hands-on AI application through continuous assessments and practical assignments, offering exposure to real-world AI implementations. Attending the Blended Intensive Program in Utrecht for five days enhanced my networking skills, provided valuable insights for my thesis work."

Abhijith Jyothi Jayachandran
Msc Human Centered Artificial Intelligence
Kerala, India

Consider a Research Degree

In addition to our taught programmes, TU Dublin offers opportunities for students to pursue research degrees including MPhil and PhD. Find more information at tudublin.ie/research/postgraduate-research.

Join our online Meet and Greet

You are invited to meet with staff from our Computing Masters programmes in an online meet and greet on 24 April 2024 at 2pm (Irish Time). To express interest in attending the meet and greet, please visit our website (tudublin.ie/cdd) and complete the form under "For International Students".

Find out More

Watch our video and find out more about Computing, Digital and Data at Technological University Dublin, Ireland. Visit tudublin.ie/cdd or scan the QR code.

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