HIGHER CERTIFICATE IN **DATA SCIENCE**

SUSI

Duration:
Two Years
Full-Time

CAO Points 2021:
N/A

NFQ Level:
Level 6

CAO Code:
NC105

About the Course

Data Science is the study of information - where it comes from, what it tells us and how to turn it into a resource for business, government and social strategies. Data can be used to examine performance in key areas of a company, such as sales and marketing, operations, customer services and security, highlighting what's most and least effective, and driving change based on evidence, rather than gut instinct.

NCI's Higher Certificate in Data Science uses a blend of computer science and data science to provide you with the knowledge and skills necessary to carry out data modelling, data management and data analysis activities, and to interpret and communicate that data to a variety of audiences. The programme will give you the mathematics, programming and problem-solving skills required to exploit data in addressing real-world problems. You will also develop your problem solving, teamwork, critical thinking and communication skills.

As a graduate of this course you will:
• Identify, clean, integrate, select, transform, and mine different types of datasets with consideration of ethical, privacy and data protection issues, in order to summarise and present new knowledge.
• Design, implement and document algorithmic solutions that demonstrate use of processes, methodologies, tools and techniques that solve known problems.
• Utilise statistical analysis, modelling, data mining and machine learning tools and techniques to analyse datasets.
• Communicate the results of analysis to both technical and non-technical audiences in a class room setting.
• Analyse problems through both independent and collaborative efforts in order to develop solutions and provide information to meet business requirements as part of a team.
• Use problem solving and analytical thinking techniques, communication, and interaction skills to support decision making.

Course Structure and Award

This undergraduate course is a two-year Higher Certificate. The course is run over four semesters with continuous assessment held throughout the course and examinations at the end of each semester.

On completion, you will receive a QQI Higher Certificate in Data Science at level 6 on the National Framework of Qualifications.

Further Study Options

Upon successful completion of the Higher Certificate in Data Science, graduates can gain entry directly into year three of the BSc (Hons) in Data Science at NCI. Graduates can also progress to other programmes at level 7 or level 8 on the National Framework of Qualifications such as the BSc (Hons) in Computing, BSc (Hons) in Technology Management at National College of Ireland.

Career Prospects

This course will equip you with the technical computer science and data science skills to build a successful career as a technician in the areas of computing, data management and data analysis.

Who is the course for?

This course will be particularly appealing to students who are unsure about enrolling in a degree programme initially and see the Higher Certificate as a progression route to a degree at a later stage. The course is for school leavers, mature students and graduates of QQI level 5/6 programmes.

Laptop Requirements

NCI strongly advises that all students should have access to a suitable laptop for their course. A student laptop loan scheme may be available for certain eligible students. Details of the laptop loan scheme and laptop specifications, which can be different for each course, are available on our website.

Minimum Entry Requirements

Minimum entry requirements are a grade of O6/H7 or above in five subjects. A minimum of grade H5 must be obtained in Mathematics. A minimum of grade O6 must be obtained in English. Mature applicants, applicants with a disability or those applying through the DARE or HEAR access schemes should consult pages 70 and 71.

NCI will be offering a mathematics qualifying exam for students who would like to pursue the Higher Certificate in Data Science. This provides prospective students a second chance or an alternative way to meet the required mathematics standard of H5 in Leaving Certificate Maths for the Higher Certificate in Data Science. To find out more and register for the exam see www.ncirl.ie/data-science.

Course Fees

This course qualifies under the Free Fees Initiative and the Student Grant Scheme.

A GUIDE TO **COURSE CONTENT**

Year 1

Semester 1
• Computational Thinking
• The Computing Industry
• Problem Solving and Programming Concepts
• Discrete Mathematics
• Introduction to Data Science

Semester 2
• Introduction to Data Modelling & Databases
• Computing Systems
• Programming I
• Statistics I

Year 2

Semester 1
• Programming II
• Advanced Databases
• Data Visualisation
• Statistics II

Semester 2
• Linear Algebra
• Data Mining & Machine Learning
• IT Project Management
• Data Analysis Project (elective)*
• Programming III (elective)*

*Students wishing to progress to the BSc (Honours) in Data Science must complete Programming III, while those exiting the programme with a Higher Certificate must complete the Data Analysis Project.