

# BSc (Honours) in DATA SCIENCE

## Duration:

Four Years  
Full-Time

## CAO Points 2019:

AQA\*

## NFQ Level:

Level 8



CAO Code  
NC025

## 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.

This honours degree will equip students with the skills to apply computing and analytical science in the pursuit of discovering new information by identifying patterns in data.

The course is practical in nature, providing you with knowledge of the way data science can solve real problems and facilitate business decisions based on evidence. It also incorporates work placement in a company which will significantly improve your skills and enhance your employability. Due to the shortage of suitably qualified data science professionals in Ireland and internationally, this degree offers exceptional job prospects for graduates.

As a graduate of this course you will be able to:

- Understand how data can be valuable and can help solve business problems and facilitate business decisions.
- Apply data transformation, modelling, mining and machine learning techniques to analyse and derive new knowledge and insight from data.
- Design and implement data science algorithms and applications that solve real-world problems.
- Effectively visualise and communicate the results of data analysis to support business decision making.
- Adopt appropriate professional, ethical, legal, security and privacy principles in the construction and implementation of data science solutions.

## Course Structure and Award

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

On completion you will receive a QQI BSc (Honours) Degree in Data Science at level 8 on the National Framework of Qualifications. The course also prepares students for industry-recognised certification in leading technologies.

## Work Experience

The course is industry focused with a six-month work placement in the third year. NCI students are highly sought after and complete their work experience in companies like Microsoft, Eir, AIB, Irish Life, Vodafone, Intel, Citi, SAP, Workday.

## Career Prospects

Graduates from the BSc (Honours) in Data Science will complete a six-month work placement in industry and on graduation can go on to work with a variety of organisations including multinationals, financial services and professional

services companies. Related data science roles include data scientist, business intelligence analyst, customer insight lead, risk analyst, knowledge engineer, and data programmer.

## Further Study Options

Upon successful completion of the BSc (Honours) in Data Science, graduates can progress to postgraduate courses in computing at level 9 on the National Framework of Qualifications such as the MSc in Data Analytics, MSc in Cybersecurity, MSc in Cloud Computing or the MSc in Fintech at National College of Ireland.

## Who is the course for?

This course will appeal to students who are interested in developing computing and numeracy skills and pursue a career in data science. The course is for school leavers, mature students, and graduates of QQI level 5/6 programmes who wish to embark on a course of full-time study.

## Minimum Entry Requirements

Minimum entry requirements are a grade H5 and above in two higher level subjects together with a minimum of O6 in four other subjects. A minimum of grade H5 must be obtained in Mathematics. A minimum of grade O6 must be obtained in English.

\*This course was listed under CAO's Available Places scheme in 2019. All applicants who met the entry requirements could apply for the course regardless of points achieved. To find out more about Available Places visit [cao.ie](http://cao.ie).

Mature applicants, applicants with a disability or those applying through the DARE or HEAR access schemes should consult pages 66 and 67.

NCI will be offering a mathematics qualifying exam for students who would like to pursue the BSc Honours 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 BSc Honours in Data Science. To find out more and register for the exam see [www.ncirl.ie/data-science](http://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

## Year 2

### Semester 1

- Programming II
- Advanced Databases
- Data Visualisation
- Statistics II

### Semester 2

- Linear Algebra
- Data Mining & Machine Learning
- IT Project Management
- Programming III

## Year 3

### Semester 1

- Data Architecture
- Scalable Data Analytics
- Advanced Machine Learning
- Data Warehousing and Business Intelligence
- Artificial Intelligence

### Semester 2

- *Work Placement\**
- \*Full six months within an organisation

OR

- Academic Internship

## Year 4

### Semester 1

- Data Science Project

Two electives from the following:

- Systems Modelling, Simulation & Optimization for Analytics
- Strategic Data Analysis
- Predictive & Prescriptive Analytics
- Text Analytics

### Semester 2

- Data Science Project
- Data Governance, Security & Ethics

One elective from the following:

- IoT Real Time Analytics
- Financial Data Analysis
- Healthcare Analytics