

Computer Science

CAO code: DN201

Sample pathway for a degree in Computer Science *

YEAR
1

ENGAGE WITH THE PRINCIPLES

COMPUTER SCIENCE

Topics include:

- ▶ Algorithmic Problem-Solving
- ▶ Computer Programming
- ▶ Introduction to Computer Architecture

- ▶ Formal Foundations
- ▶ Computer Science in Practice
- ▶ Software Engineering Project 1

MATHEMATICS

Topics include:

- ▶ Matrix Algebra
- ▶ Foundations of Mathematics for Computer Science

- ▶ Two Elective modules

YEAR
2

BROADEN YOUR KNOWLEDGE

COMPUTER SCIENCE – Topics include:

- ▶ Data Structures & Algorithms
- ▶ Introduction to Java
- ▶ Discrete Mathematics for Computer Science
- ▶ Software Engineering Project 2

- ▶ Linear Algebra II
- ▶ Databases and Information Systems I
- ▶ Digital Systems
- ▶ Introduction to Operating Systems
- ▶ Introduction to Functional Programming

- ▶ Two Elective modules

YEAR
3

FOCUS ON YOUR CHOSEN SUBJECT

COMPUTER SCIENCE – Topics include:

- ▶ Foundations of Computing
- ▶ Networks and Internet Systems
- ▶ Object-Oriented Programming

- ▶ Software Engineering Project 3
- ▶ Introduction to Artificial Intelligence
- ▶ Program Construction 1

- ▶ Computer Graphics 1
- ▶ Processor Design
- ▶ Graphs and Networks
- ▶ Information Theory

- ▶ Two Elective modules

YEAR
4

REFINE YOUR KNOWLEDGE

COMPUTER SCIENCE – Topics include:

- ▶ Computer Science Project
- ▶ AI for Games and Puzzles
- ▶ Spatial Information Systems
- ▶ Machine Learning
- ▶ Data Mining

- ▶ Multimedia Security & Data Hiding
- ▶ Distributed Systems
- ▶ Advances in Wireless Networking

- ▶ Compiler Construction
- ▶ Programme Construction II
- ▶ Cloud Computing
- ▶ Practical Android Programming
- ▶ Mobile App Development

BSc (Honours) Computer Science

MSc (Taught)

- ▶ MSc Computer Science (Negotiated Learning)
- ▶ MSc Digital Investigation & Forensic Computing
- ▶ MSc Cognitive Science

Research

Many graduates pursue MSc and PhD studies in Ireland and abroad in diverse areas such as:

- ▶ Artificial Intelligence
- ▶ Software and Systems Engineering
- ▶ Networks and Distributed Systems
- ▶ Postdoctoral researcher

Industry

- ▶ High-Tech Sector
- ▶ Financial Sector
- ▶ Consultancies
- ▶ R&D
- ▶ UCD Tech Start-ups
- ▶ Education (Third Level)

Conversion Courses

- ▶ Smurfit Business School postgraduate degrees, e.g., Masters in Business Administration; Masters in Business Analytics



Caroline Keiller, Horea Catanase and Alan Fitzpatrick “visualising a goal” as part of Computer Science module Project Management.

Image by Niall Hayes © UCD

- Develop skills in object-oriented programming languages such as Java and Ruby, the latest Internet technologies, software engineering, mobile application development, database technology and operating systems such as Windows, Unix and Linux

“ I chose to study Computer Science at UCD because of my avid interest in technology and the great opportunities it afforded me going forward. I have always been really passionate about technology, and always intended on pursuing a career within the field. Upon graduating I intend on pursuing a career in the technology consultancy field, exercising technical expertise within the business sector.



Ryan Kane, Student ”

*See pages 4 and 5 for information on the terminology used above. Potential combinations shown here are examples only and are not guaranteed by UCD. Topics are subject to change each year.

i

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