BSC (HONS) COMPUTER SCIENCE

Overview

NFQ Level 8, Major Award

Students enter Second Science Computer Science from the First Science Area of Study: Computer Science (CK401) (https://ucc-ie-public.courseleaf.com/programmes/bscsf/) provided they have passed First Science.

Students may opt for a Single Honours Degree in **Computer Science** or a Single Honours Degree in **Computer Science (Software Entrepreneurship)**.

In each of these degree programmes, there is a **Work Placement** module. The Third University Examinations are held early and the Work Placement module is part of the final year assessment. The normal duration for Work Placement is 6 months, (CS3300), commencing in early April of the Third Year, as part of a four year degree programme. In some circumstances a 12 month Work Placement (CS3301) may be approved by the College as part of an extended Third Year, for students who are offered such positions by employers. A student pursuing a 12 month Work Placement will be allowed a waiver of part of the registration fee for the extended period.

Progression to Single Honours Degrees

Admission to a subsequent year of the **Single Honours** programme requires a Pass overall in the current year's examination (details are available in the Marks and Standards Book).

Admission to the **Computer Science (Software Entrepreneurship)** programme in Second Science has specific requirements. A student wishing to pursue this degree must obtain a Pass in Computer Science at the First University Examination and at least 40% in Economics in First Science.

An overview of the programme structures is shown in Table 4(a).

Table 4(a) Computer Science

First Science	Second Science	Third Science	Fourth Science
CK401	BSc Single Honours Computer Science	BSc Single Honours Computer Science	BSc Single Honours Computer Science
	CS (50 credits)	CS (60 credits)	CS (60 credits)
	+ CS/FR/HS/MA (10 credits)		
	BSc Single Honours Computer Science (Software Entrepreneurship)	BSc Single Honours Computer Science (Software Entrepreneurship)	BSc Single Honours Computer Science (Software Entrepreneurship)
	CS (25 credits) + EC (35 credits)	CS (40 credits) + EC (20 credits)	CS (35 credits) + EC (25 credits)

BSc Ordinary Degree - NFQ Level 7, Major Award

Students who pass Third Year may choose not to proceed to Fourth Year and may opt instead to be conferred with a BSc Ordinary Degree (https://ucc-ie-public.courseleaf.com/programmes/bscpas/).

Programme Requirements

For information about modules, module choice, options and credit weightings, please go to Programme Requirements (p. 1).

Programme Requirements

Code	Title	Credits
Year 1		
Single Honours		
Students take **60** credits as follows – all listed core modules (**50** credits) and **10** credits of elective modules:		
Core Modules		
CS1106	Introduction to Relational Databases	5
CS1110	Computer Hardware Organization	5
CS1111	Systems Organisation	5
CS1112	Foundations of Computer Science I	5
CS1113	Foundations of Computer Science II	5
CS1115	Web Development 1	5
CS1116	Web Development 2	5
CS1117	Introduction to Programming	15
Elective Modules		
Students take modules to the value of **10** credits from the following:		10
CH1001	Chinese Language (Mandarin) I	
CS1130 ***plus*** CS1131	Irish Language for Computer Science I ***plus*** Irish Language for Computer Science II	
EC1202 ***plus*** EC1203	Economic Reasoning for Business ***plus*** Macroeconomic Context and Business	
FR0105	Introduction to French : Complete Beginners	
FR1005	French for Near Beginners	
FR1105 ***plus*** FR1107	Threshold French ***plus*** French for Reading Purposes I	
GE0005 ***plus*** GE0008	German Language (CEFR-Level A2.1) ***plus*** German Language (CEFR-Level A2.2)	
HS0028	Spanish Language (Beginner Level)	
IT1102	Non-Beginners' Written and Spoken Italian	
IT1109	Introduction to Written and Spoken Italian	
MA1001	Calculus for Science Part 1	
MA1002	Calculus for Science Part 2 [1]	
MA1059	Calculus	
MA1060	Introduction to Analysis	
Year 2		
Students take **60** credits as follows – all listed core modules (**50** credits) and **10** credits of elective modules:		
Core Modules		
CS2208	Information Storage and Management I	
CS2209	Information Storage and Management II	
CS2503	Operating Systems 1	
CS2505	Network Computing	
CS2506	Operating Systems II	
CS2507	Computer Architecture	

CS2513	Intermediate Programming	
CS2514	Introduction to Java	
CS2515	Algorithms and Data Structures I	
CS2516	Algorithms and Data Structures II	
Elective Modules		
Students take modules to the value of **10** credits from the following:		10
Computer Science		
CS2502	Logic Design ()	
CS2511	Usability Engineering ()	
Languages		
HS0128	Spanish Language (Improver [01] Level) ()	
FR1105 ***plus*** FR1107	Threshold French (0) ***plus*** French for Reading Purposes I () [1]	
or FR2105 & FR2107	Towards Vantage French () and French for Reading Purposes II	
Mathematics		
MA1057 ***plus*** MA1058	Introduction to Abstract Algebra (0) ***plus*** Introduction to Linear Algebra ()	
Year 3		
Students take **60** credits as follows - all listed core modules (**40** credits) and **20** credits of elective modules:		
Core Modules		
CS3300	Work Placement	10
or CS3301	Work Placement	
CS3305	Team Software Project	10
CS3306	Workplace Technology and Skills	10
CS3318	Advanced Programming with Java	5
CS3500	Software Engineering	5
Elective Modules		
Students take modules to the value of **20** credits from the following:		20
CS3204	Cloud Infrastructure and Services (5)	
CS3506	Networks and Data Communications (5)	
CS3509	Theory of Computation (5)	
CS3511	Ethical Hacking and Web Security (5)	
CS3514	C-Programming for Microcontrollers (5)	
Year 4		
Students take **60** credits as follows - all listed core modules (**15** credits) and **45** credits of elective modules:		
Core Modules		
CS4501	Computer Science Project	15
Elective Modules		
Students take modules to the value of **45** credits from the following: [2]		45
CS4092	Special Topics in Computing I (5)	
CS4093	Special Topics in Computing II (5)	
CS4150	Principles of Compilation (5)	
CS4402	Parallel and Grid Computing (5)	
CS4405	Multimedia Compression and Delivery (5)	
CS4407	Algorithm Analysis (5)	
CS4507	Advanced Software Engineering (5)	
CS4614	Introductory Network Security (5)	
CS4615	Computer Systems Security (5)	
CS4618	Artificial Intelligence I (5) [3]	
CS4619	Artificial Intelligence II (5) [3]	
CS4620	Functional Programming I (5)	
CS4626	Constraint Programming and Optimisation (5)	
CS4628	Internet of Things (5)	
Total Credits		**190**

1 Modules FR1105 and FR1107 are only available to students who have not already taken French in First Year.
2 Note that not all elective modules will be offered each year.
3 In order to register for CS4619, you must register for CS4618 as it is a co-requisite.

Programme Learning Outcomes

Programme Learning Outcomes for BSc in Computer Science (NFQ Level 8, Major Award)

On successful completion of this programme, students should be able to:

- Formulate and solve problems using the mathematical principles which underlie electronic computation;
- Analyse real-world applications in the light of these mathematical principles, in order to identify the most appropriate computational approach;
- Identify the most appropriate technologies for implementing the chosen computational approach to solving a real-world application;
- Use a range of computing technologies and programming languages to implement appropriate computational approaches to real-world applications;
- Demonstrate familiarity with a range of Software Engineering methodologies, sufficient to choose the most appropriate methodology for managing a software development project, taking into account the overall context of the application and its life-cycle environment;
- Demonstrate a familiarity with, and fluency in the use of, software evaluation techniques;
- Write well-structured reports which address relevant aspects of computer-system development projects.