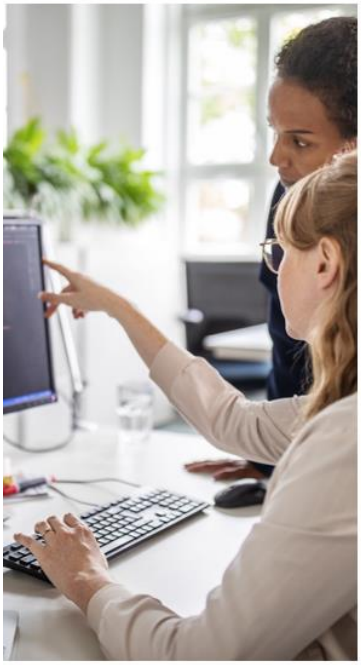
BSC COMPUTER SCIENCE (CK401) HANDBOOK



School of Computer Science and Information Technology

Western Gateway Building, University College Cork, Western Road, Cork, Ireland

csoffice@cs.ucc.ie

(0)21 420 5892

CONTENTS

INTRODUCTION

University College Cork (UCC) has a very important place in the history of Information Technology as Boolean algebra, which provides the mathematical basis for computer design, was named after George Boole, the first Professor of Mathematics in UCC.

Computer scientists conceive, design, build, and maintain the complex computer systems to solve real world problems. This involves the study of computing processes, algorithmic principles, software, hardware & systems design, their implementation, and their impact on society. As a Computer Science student, you will master the core technologies that provide the building blocks of modern computer systems, such as networks, database technology, programming, algorithms, artificial intelligence, cyber security, web technology and applications.

The school is located in the five-storey Western Gateway Building. The building includes state-of-the-art teaching laboratories, world-class research laboratories and is designed to achieve an environment that will encourage staff and students to be both productive and creative.

COURSE OUTLINE

Our Computer Science degree programmes comprise a blend of lectures and laboratory work. Apart from the lectures that introduce the key concepts, each module includes a suite of labs designed to provide experience with practical problem solving, using these concepts in a small group setting. Computer Science is a discipline where you learn by doing, and so these labs form an integral component of the course. Your work is assessed throughout the year using a mixture of regularly assigned course work, class tests and projects.

PROGRAMME DIRECTOR

Dr Aisling O'Driscoll
Office: No. G-61 Western Gateway Building,
Tel. 021 420 5919
Email: a.odriscoll@cs.ucc.ie

YEAR COORDINATORS

Year 1: Dr Aisling O'Driscoll
Details as before.

Year 2: Prof. Ken Brown
Office: No. 2-61 Western Gateway Building,
Tel. 021 420 5952
Email: k.brown@cs.ucc.ie

Year 3: Prof. John Morrison
Office: No. 2-50 Western Gateway Building,
Tel. 021 420 5944
Email: j.morrison@cs.ucc.ie

Year 4: Dr Frank Boehme
Office: No. G-60 Western Gateway Building,
Tel. 021 420 5916
Email: f.boehme@cs.ucc.ie

Study/Review Week	06/12/2021 - 09/12/2021
Christmas Exams	10/12/2021 – 21/12/2021
Teaching Semester 2	17/01/2022 - 08/04/2022
Easter Recess	11/04/2022 - 22/04/2022
Study/Review Week	25/04/2022 - 28/04/2022
Exam Dates	29/04/2022 - 13/05/2022

COURSE DETAILS

Year 1 Modules – 60 credits

Core Modules **50 credits**		**Credits**	**Lecturer**
CS1106	Introduction to Relational Databases	5	Dr Kieran Herley
CS1110	Computer Hardware Organisation	5	Professor John Morrison
CS1111	Systems Organisation	5	Professor John Morrison
CS1112	Foundations of Computer Science I	5	Professor Barry O'Sullivan
CS1113	Foundations of Computer Science II	5	Professor Barry O'Sullivan
CS1115	Web Development I	5	Dr Derek Bridge
CS1116	Web Development II	5	Dr Derek Bridge
CS1117	Introduction to Programming (15 credits)	15	Dr Aisling O'Driscoll

Elective Modules **10 credits**	
CS1130 & CS1131	Irish Language for Computer Science I & II
CH1001	Chinese Language (Mandarin) I (Beginner Level) (10 credits)
EC1202 EC1203	Economic Reasoning for Business & Macroeconomic Context and Business
FR0105 FR1005	Introduction to French & French for Near Beginners
FR1105 FR1107	Threshold French & French for Reading Purposes I

GE0005 & GE0008 German Language (CEFR-Level A2.1 & A2.2)	
HS0028	Spanish Language (Beginner Level) (10 credits)
T1102	Non-Beginners' Written and Spoken Italian (10 credits)
IT1109	Introduction to Written and Spoken Italian (10 credits)
MA1001 & MA1002 Calculus for Science Parts 1 & 2	
MA1059 MA1060	Calculus, Introduction to Analysis

Year 2 Modules – 60 credits

Core Modules **50 credits**	
CS2208	Information Storage and Management I
CS2209	Information Storage and Management II
CS2503	Operating Systems I
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
10 credits

Computer Science: CS2502, CS2511 (5 credits per module)

Languages: HS0128 (10 credits), FR1105* plus FR1107* (5 credits per module) *or* FR2105 plus FR2107 (5 credits per module)

Mathematics: MA1057 (5 credits) plus MA1058 (5 credits)

Note: *Modules FR1105 and FR1107 are only available to students who have not already taken French in First Year.

Year 3 Modules – 60 credits

Core Modules **40 credits**	
CS3305	Team Software Project (10 credits)
CS3306	Workplace Technology and Skills (10 credits)
CS3318	Advanced Programming with Java
CS3500	Software Engineering
CS 3300	Work Placement (Between April and April of the following year, 10 credits) **or**
CS3301	Work Placement (April – September, 10 credits)

Elective Modules **20 credits**	
CS3204	Cloud Infrastructure and Services
CS3506	Networks and Data Communications
CS3509	Theory of Computation
CS3511	Ethical Hacking and Web Security
CS3514	C-Programming for Microcontrollers

Year 4 Modules – 60 credits

Core Modules **15 credits**	
CS4501	Computer Science Project

Elective Modules **45 credits**	
CS4092	Special Topics in Computing I
CS4093	Special Topics in Computing II
CS4150	Principles of Compilation
CS4402	Parallel and Grid Computing
CS4403	Introduction to Embedded Systems
CS4404	Computer Graphics
CS4405	Multimedia Compression and Delivery

CS4407	Algorithm Analysis
CS4412	Rules-Based Systems
CS4507	Advanced Software Engineering
CS4508	Software System Engineering
CS4610	Collective Intelligence and the Adaptive Web
CS4611	Information Retrieval
CS4612	Web Search
CS4613	Games Engines
CS4614	Introductory Network Security
CS4615	Computer Systems Security
CS4616	Distributed Algorithms
CS4617	Advanced Computer Architecture I
CS4618	Artificial Intelligence I
CS4619	Artificial Intelligence II
CS4620	Functional Programming I
CS4621	Functional Programming II
CS4622	Advanced Computer Architecture II
CS4626	Constraint Programming and Optimisation
CS4627	Software-Defined Networking
CS4628	Internet of Things

Note that not all elective modules will be offered each year.

In order to register for CS4619, you must register for CS4618 as it is a co-requisite.

COURSE PRACTICALITIES

This is a full-time course expecting a full-time commitment. The annual 60-credits workload typically equates to 12 hours of lectures per week and a comparable amount for laboratory work and tutorials.

Expected reading/practical hours: The course also demands a significant amount of additional time for study, reading, completion of project and assignment work.

TIMETABLES

The BSc Computer Science starts on 27/9/2021 for 1st year students. Timetables are available at http://timetable.ucc.ie , select College of Science, Engineering, Food Science and Semester 1/2.

Please note that the timetables may be altered and updated over the first weeks of Semesters I and II; laboratory timetables are scheduled later.

HOW TO USE CANVAS

Canvas is a web-based learning management system, used by institutes of higher education around the world. It will be an important learning support to you in your time in UCC.

When you register with us, you will be automatically enrolled in the "Learning with Canvas" course, which is accessible through canvas.

Further information on Canvas and its technical requirements can be found on our remote learning support webpage : https://www.ucc.ie/en/sit/support/remote-learning/#what-do-i-need-for-remote-learning

PLAGIARISM

Plagiarism is the presentation of someone else's work as your own. When done deliberately, it is cheating, since it is an attempt to claim credit for work not done by you and fails to give credit for the work of others. Plagiarism applies not just to text, but to software, graphics, tables, formulae, or any representation of ideas in print, electronic or any other media.

UCC policy on plagiarism

All students are required to read, to understand, and to comply with the UCC Policy on Plagiarism, which may be found on line at www.ucc.ie/en/exams/procedures-regulations/

Submitting Original and Existing Work

In general, you should write all coursework in your own words.

Coursework includes but not limited to:

- Programming assignments;
- Literature reviews;
- Abstracts and summaries;
- Thesis.

Submitting existing software

As a general rule:

For assignments you are not allowed to submit existing software unless the lecturer clearly indicates that this is allowed. Please consult with your course lecturer if you are unsure whether you are allowed to submit existing software for assignments.

For your thesis, you are usually allowed to submit (small) parts of existing software. Please consult with your project supervisor if you are unsure whether you are allowed to re-use existing software for your thesis.

Submitting work from others

If you wish to quote small portions of text, include images, software, or other work created by others, you need to make it clear that you are doing so. You usually do this by putting quotation marks around quoted text and by including citations. Please note that pictures and diagrams in books and papers may be copyrighted, in which case you need explicit permission from the copyright holder.

Please note that if you acknowledge the original source, your lecturers/examiners will know that you are aware of the source, for which you can receive credit in the form of marks. If you fail to acknowledge the source, your lecturers/examiners cannot give you any credit for using the source. When failing to acknowledge the source is a deliberate, this is a form of cheating, which may result in awarding a zero mark.

Citing existing software

As with any work written by others, if you submit (parts of) existing software as part of your coursework, you should always give proper credit to the original author(s). In addition, you should clearly indicate which parts of these software are yours and which are not.

In a program listing you should indicate this using comments;

In a report, literature review, or thesis you should also indicate the source of the software in the running text, which should include a proper citation.

ATTENDANCE

Every registered student is expected to attend all teaching elements of their programme, including, but not limited to, lectures, tutorials, laboratory classes, placements, etc.

In the case of absence through illness, a student must, if possible, give notice of each absence in writing to the Lecturer concerned and/or Head of School/Department responsible.

In the case of such absence for more than four lecture days, the student must, on resuming attendance, notify the Lecturer concerned and/or Head of School/Department in writing and, if appropriate, lodge a medical certificate with the Head of School/Department, who will provide a copy for the Student Records and Examinations Office.

A student will not be permitted to enter for an examination if a specified attendance requirement of a module has not been met, or if attendance by the student is not considered satisfactory by the Deputy President and Registrar following a report by the Lecturer and/or Head of School/Department responsible for the module. The decision of the Deputy President and Registrar is subject to appeal to Academic Council.

ADDITIONAL ACADEMIC SUPPORTS

If you need additional academic support please speak to your module lecturer in the first instance followed by your year coordinator. Those who require additional academic support due to disability should register with the UCC disability support service at https://www.ucc.ie/en/dss/. The School of Computer Science provides a unique service for its first year students called the SOLAS initiative.

SOLAS

CSIT SOLAS @ UCC is the Student Online Learning And Support (SOLAS) Hub for the School of Computer Science and Information Technology (CSIT) at UCC

CSIT SOLAS @ UCC is a dedicated support centre where first year CSIT students can drop-in to ask a question and receive advice on course material (dependent on recommendations on COVID restrictions). SOLAS compliments the support received during your traditional module labs/demonstrators.

CSIT SOLAS @ UCC supports the following first year CSIT modules:

CS1021	Relational Databases I
CS1022	Introduction to Programming & Problem Solving
CS1023	Introduction to Human-Centred Computing
CS1061	Programming in C
CS1065	Computer Applications Programming
CS1068	Introductory Programming in Python
CS1069	Introduction to Internet Technologies
CS1106	Introduction to Relational Databases
CS1110	Computer Hardware Organization
CS1111	Systems Organisation
CS1112	Foundations of Computer Science I
CS1113	Foundations of Computer Science II
CS1115	Web Development 1
CS1116	Web Development 2

CS1117	Introduction to Programming
CS1201	Introduction to Computer Systems
CS1202	Programming for Digital Humanities I
CS1203	Programming for Digital Humanities II
CS1204	Databases for Digital Humanities

Once the semester begins, further information on the CSIT SOLAS @ UCC support schedule will be emailed to you. We will also introduce the support offered by CSIT SOLAS @ UCC during the week of your initial lectures. If you have any questions, queries or need a little bit of advice, you can email csitsolas@cs.ucc.ie.

IT SUPPORT FOR BSC CS

You will be provided with a Login ID and Password in your first lab session to access the CS and Statistics laboratory machines and the main servers.

Entry to our computer laboratories is by Swipe Access, for which you will need a valid Student ID Card, which you will receive at Registration.

COMPUTER SCIENCE LAB SUPPORT

If you have any IT queries regarding the Computer Science Labs you should contact the Computer Science IT Support Desk via email at help@cs.ucc.ie. The Computer Science IT Support Desk is situated in Room 1.25, First Floor, Western Gateway Building. The Computer Science IT Support Desk is open during term between 11.00 a.m. – 12.30 p.m. Monday to Friday and 2.30 p.m. – 4.00 p.m. Monday to Thursday. You can visit the Computer Science IT Support webpage for helpful technical guidance http://www.cs.ucc.ie/help

Print Quota

To manage printing facilities effectively, you will be allocated a Print Quota. Your logon entitles you to print 150 pages (5c per subsequent page). You can "top-up" by buying additional quota from the Print Quota machine, which is located near the Computer Science IT Helpdesk on the First Floor.

Equipment

The School provides all the facilities necessary to complete your practical laboratory work. However many students opt to purchase a personal laptop/machine. If you choose to do so and have queries relating to a suitable specification please consult the Computer Science IT Support webpage at http://www.cs.ucc.ie/help where a dedicated post is available http://www.cs.ucc.ie/help/?page_id=834

HEALTH & SAFETY GUIDELINES FOR STUDENTS

Students and staff are at all times expected to adopt a responsible attitude to all matters concerning health and safety at UCC. Under the current Safety, Health and Welfare at Work Act students/staff have a legal responsibility to consider their own safety, must cooperate at all times in implementing laboratory safety policy of UCC, must use the safety equipment provided, must report accidents or unsafe practices and must not interfere with the school safety policy.

It is expected that students will adhere strictly to the instructions of academic, technical and research staff when carrying out practical work.

MESSAGE REGARDING COVID 19

The world is in an unprecedented place regarding the health and welfare of our people. Ireland and UCC are working hard to control the virus, COVID 19, and have measures in place to minimise its effects. Controlling the virus is a joint responsibility and we are asking you to take your responsibility seriously and follow national and UCC guidelines.

For reliable information please refer to national and UCC sources of information only:

University College Cork will post information for students on its FAQ page:
https://www.ucc.ie/en/emt/covid19/student-faq/

Health Service Executive: https://www2.hse.ie/conditions/covid19/

Health Protections Surveillance Centre: https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/

Coronavirus (COVID 19) https://www.gov.ie/en/campaigns/c36c85-covid-19-coronavirus/

At all times, students are expected to observe the national guidelines to reduce the spread of Covid 19:

- physical distancing (See Protect Yourself and Others section of Health Service Executive website above)
- coughing and sneezing etiquette (See Protect Yourself and Others section of Health Service Executive website above)
- handwashing with soap and water for at least 20 seconds; How to clean your hands – HSE video.

If have the symptoms of COVID 19 or suspect that you have them, DO NOT COME TO THE UNIVERSITY, contact your GP or UCC Health on 021 4902311 and follow their advice. For emergencies, call 112 or 999.

We recommend that all students download the UCC Covid Tracker and Day Pass App and ensure they use it before coming to campus. You can read more on the app, including how to download and how to use it, here:

https://www.ucc.ie/en/emt/covid19/ucc-covid-app/

Please be aware that the situation regarding the virus, COVID 19, is dynamic and advice and guidelines may change from time to time.

Please be assured that the School of Computer Science and Information Technology is working constantly to protect its staff and students as far as practically possible. In addition to your programme coordinator and lecturers, UCC has many services available to support students.

EMERGENCY EVACUATION DRILLS/FIRE ALARMS

If the fire alarm sounds please leave the building as quickly as possible by the nearest exit and follow instruction of the fire marshals.

SCHOOL FIRST AIDER

Contact School Office ext. 5891

LABORATORIES

- Food and beverages are not allowed in the laboratories – food contamination on the mouse and keyboards are serious health risk
- Remove all trip hazards (rucksacks, clothing etc.) from walking areas
- Please remove all items from the laboratory when you are leaving
- Do not provide access to the laboratory to other non-Computer Science students
- Report any hazards (obstacles, cables, etc.) to School Office, Rm 1.28
- Note the UCC acceptable usage policy regarding online usage. See link listed below.
- Pay attention to existing signage in the laboratories
- If you find items in labs that do not belong to you, please bring to the School Office, Room 1.28
- Please remember that the laboratories are a working environment and noise should be kept at a minimum
- Dispose of all waste in the refuse bins provided

UCC POLICIES AND PROCEDURES

There are many important policies and procedures with which Students should be familiar. See the below for information on each one.

- Policies and Procedures https://www.ucc.ie/en/academicgov/policies/
- Acceptable Usage Policy https://www.ucc.ie/en/it-policies/policies/au-pol/
- Student Health Service https://www.ucc.ie/en/studenthealth/

This document is provided as a guideline only, if you have any concerns, please contact the School Office; Tel: 021 420 5892, email: csoffice@cs.ucc.ie

CONTACT DETAILS

The School Office is situated in Room 1.28 on the First Floor of the Western Gateway Building.

Contact Details:

- Margaret Hynes/Julie Walsh
- Phone: +353 21 4205892
- Email: csoffice@cs.ucc.ie

The School Office opening hours is from 9.00 a.m. – 1.00 p.m. and 2.00 p.m. – 5.00 p.m. Monday – Friday to help you with any queries.

UCC SKILLS CENTRE

Dedicated to helping students improve their fundamental academic skills, the Skills' centre will be on hand to offer training and support on:

- how to study
- writing essays at university level
- how to plan and manage your college assignments

Make sure to take the Skills' Centre lesson, visit the Skills' Centre website, and take the other Skills' Centre Canvas module, to set yourself up for academic success. See http://skillscentre.ucc.ie/

BOOLE LIBRARY

https://libguides.ucc.ie/library

A series of workshops for incoming students will run in the Boole Library throughout September. No need to book, just turn up on the day. It is important that you attend these workshops as they are a vital resource in your studies, and you will receive guidelines on all aspects of academic writing.

LIST OF LECTURING STAFF

Lecturing Staff	Tel. No.	Room No.	Email
Dr Frank Boehme	420-5916	G-60	f.boehme@cs.ucc.ie
Dr Derek Bridge	420-5907	2-64	d.bridge@cs.ucc.ie
Prof. Ken Brown	420-5952	2-50	k.brown@cs.ucc.ie
Dr James Doherty	420-5929	1-72	j.doherty@cs.ucc.ie
Dr Dan Grigoras	420-5918	G-65	d.grigoras@cs.ucc.ie
Dr Colin McCormack	420- 5917	G-68	c.mccormack@cs.ucc.ie
Dr John Herbert	420-5925	1-78	j.herbert@cs.ucc.ie
Dr Kieran Herley	420-5905	G-63	k.herley@cs.ucc.ie
Dr Laura Maye	420-5889	G-70	l.maye@cs.ucc.ie
Dr Rosane Minghim	420-4879	1-76	r.minghim@cs.ucc.ie
Prof. John Morrison	420-5944	2-50	j.morrison@cs.ucc.ie
Mr David Murphy	420-5908	1-77	d.murphy@cs.ucc.ie
Dr Aisling O'Driscoll	420-5919	G-61	a.odriscoll@cs.ucc.ie
Dr John O'Mullane	420-5920	G-72	j.omullane@cs.ucc.ie
Mr Adrian O'Riordan	420-5906	1-80	a.oriordan@cs.ucc.ie
Prof. Barry O'Sullivan	420-5951	2-65	b.osullivan@cs.ucc.ie
Dr Paolo Palmieri	420-5922	1-74	p.palmieri@cs.ucc.ie
Prof. Dirk Pesch	420-5914	G-50	d.pesch@cs.ucc.ie
Dr Ian Pitt	420-5904	G-60	i.pitt@cs.ucc.ie
Dr Steve Prestwich	420-5911	2-58	s.prestwich@cs.ucc.ie
Prof. Gregory Provan	420-5928	1-71	g.provan@cs.ucc.ie
Dr Jason Quinlan	420-5919	G-73	j.quinlan@cs.ucc.ie
Prof. Utz Roedig	420-5900	1-70	u.roedig@cs.ucc.ie
Mr Gavin Russell	420-5910	G-66	g.russell@cs.ucc.ie
Prof. Michel Schellekens	420-5941	2-55	m.schellekens@cs.ucc.ie
Prof. Cormac J. Sreenan	420-5892	1-28	secretary@cs.ucc.ie
Dr Klass-Jan Stol	420-5923	G-69	k.stol@cs.ucc.ie
Dr Sabin Tabirca	420-5918	1-81	s.tabirca@cs.ucc.ie
Dr Marc van Dongen	420-5903	G-64	dongen@cs.ucc.ie
Dr Ahmed Zahran	420-5926	1-82	a.zahran@cs.ucc.ie

IMPORTANT WEBSITE LINKS

Book of Modules	http://www.ucc.ie/modules/
College Calendars	https://www.ucc.ie/admin/registrar/calendar/science/sci002.html#CK401
Examinations	http://www.ucc.ie/en/exams/
Fees	http://www.ucc.ie/en/financeoffice/fees/
Marks and Standards	http://www.ucc.ie/admin/registrar/marksandstandards/
Registration	http://www.ucc.ie/calendar/general/info014j.html Includes information on the following ▪ General ▪ Address details ▪ Identity ID cards ▪ Workload Guidelines ▪ Attendance ▪ Elective Modules ▪ Change of Module/Subject ▪ Special Permission to depart from published regulations ▪ Attendance at additional modules ▪ Student Leave of Absence ▪ Withdrawal from course programme during the academic year ▪ Fees Refund – Fees Office ▪ Attendance in a repeat year ▪ Transcripts