

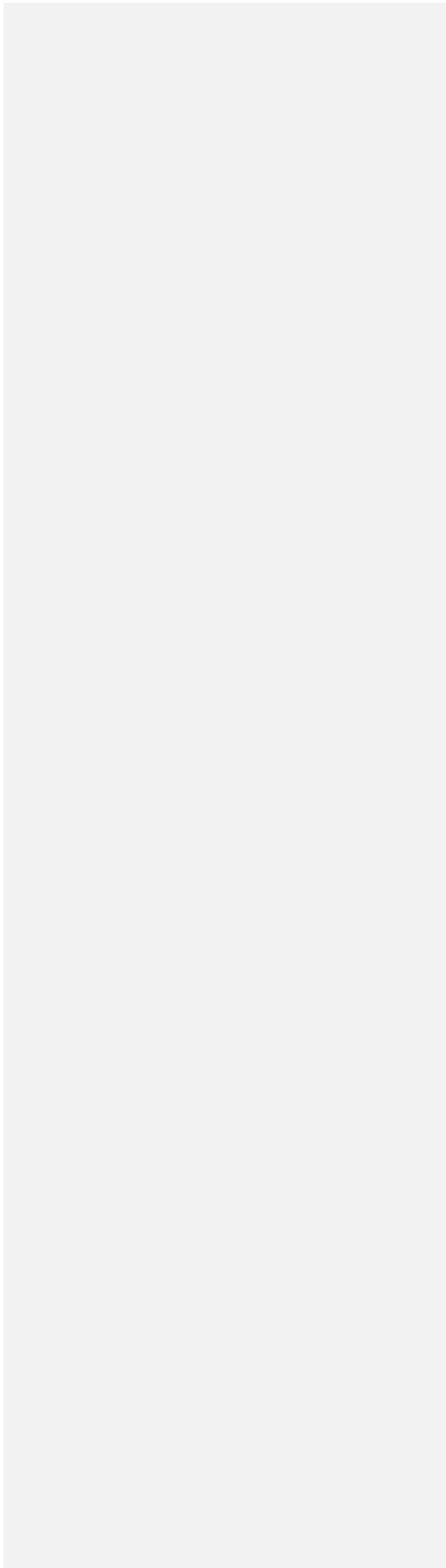
BSc Data Science and Analytics (CK411) Handbook

School of Computer Science and Information Technology
Discipline of Statistics, School of Mathematical Sciences

CONTENTS

Introduction	1
Course Outline	1
Course Coordinators	1
Semester Dates	2
Course Details.....	2
Year 1 Modules - 60 credits	2
Year 2 Modules - 60 credits	3
Year 3 Modules - 60 credits	3
Year 4 Modules - 60 credits	4
Course Practicalities	5
Timetables.....	5
Plagiarism.....	5
UCC policy on plagiarism.....	5
Submitting existing software	6
Submitting work from others.....	6
Citing existing software.....	6
Attendance	7
IT Support for BSc DSA.....	7
Computer Science Lab Support	8
Print Quota.....	8
Statistics Lab Support	8
Health & Safety Guidelines for Students (2021-2022).....	8
Emergency evacuation drills/fire alarms.....	8
School First Aider.....	8
Laboratories	9
Message regarding COVID 19.....	10
UCC Policies and Procedures	10

Contact Details	11
School of Computer Science and Information Technology.....	11
School of Mathematical Sciences	11
List of Lecturing Staff	13
School of Computer Science and Information Technology.....	13
School of Mathematical Sciences	14
Important Website Links.....	15



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.

Commented [m1]: I suggest you justify all text, rather than left-align.

Data Science & Analytics focuses on new ways to capture and understand data from the world around us, to make better decisions for people, communities and industry. The BSc in Data Science & Analytics at UCC provides an education in data storage, manipulation and interpretation using mathematical sciences and computational methods to solve complex real-world problems.

The BSc Data Science and Analytics is jointly coordinated by the School of Computer Science and Information Technology and the Discipline of Statistics, within the School of Mathematical Sciences.

Both Schools are 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

In first and second year, students study the statistical, mathematical and computational foundations of data science and analytics.

In third year, students begin applying the fundamentals of data science and analytics to real life problems and data. That year is then completed with a six-month work placement (paid in most cases) providing an opportunity to apply the skills learnt in a work-place environment.

In fourth year, students choose specialised modules and undertake an independent project which enables them to investigate more applied elements of the discipline.

Course Coordinators

The course has a coordinator from both Schools who work together to ensure that modules, timetables etc. are synchronised.

School of Computer Science and Information Technology: Professor Gregory Provan, Office No. 1.71, ext. 5928/5892.

Department of Statistics: Dr Michael Cronin, Office No. 1.47, ext. 5825.

Email: bscdsacoordinator@cs.ucc.ie

Semester Dates

Teaching Semester 1	26/09/2022 - 10/12/2022
Study/Review Week	12/12/2022 - 17/12/2022
Christmas Exams	19/12/2022 - 23/12/2022
Teaching Semester 2	16/01/2023 - 08/04/2023
Easter Recess	10/04/2023 - 22/04/2023
Study/Review Week	24/04/2023 - 27/04/2023
Exam Dates	27/04/2023 - 13/05/2023

Commented [m2]: The dates for 1st years and no 1st years differ. It would be important to capture that here, if the handbook is meant for all students.

Commented [OY3R2]: This handbook is only for year.

Course Details

The BSc Data Science and Analytics is a four-year honours degree programme with a six-month mandatory work placement in third year running from spring until August.

Year 1 Modules – 60 credits

Core Modules - 55 credits	Credits	Elective Modules - 5 credits	5 Credits
CS1106 Introduction to Relational Databases	5	AM1053 Introduction to Mathematical Modelling	5
CS1112 Foundations of Computer Science I	5	ST1401 Introduction to Operations Research	5
CS1113 Foundations of Computer Science II	5		
CS1117 Introduction to Programming	15		
AM1054 Mathematical Software	5		
MA1058 Introduction to Linear Algebra	5		
MA1059 Calculus	5		
ST1050 Statistical Programming in R	5		
ST1051 Introduction to Probability and Statistics	5		

Year 2 Modules – 60 credits

Core Modules - 55 credits	Credits	Elective Modules - 5 credits	Credits
CS2208 Information Storage and Management	5	AM2052 Mathematical Modelling	5
CS2209 Information Storage and Management II	5	ST2402 Modelling and Systems for Decision Making	5
CS2513 Intermediate Programming	5		
CS2514 Introduction to Java	5		
CS2515 Algorithms and Data Structures I	5		
CS2516 Algorithms and Data Structures II	5		
MA2055 Linear Algebra	5		
MA2071 Multivariable Calculus	5		
ST2053 Introduction to Regression Analysis	5		
ST2054 Probability and Mathematical Statistics	10		

Year 3 Modules – 60 credits

Core Modules - 60 credits	Credits	Elective Modules - 0 credits	Credits
CS3204 Cloud Infrastructure and Services	5		
CS3205 Data Visualization for Analytics Applications	5		
CS3220 Work Placement DSA	10		
CS3306 Workplace Technology and Skills	10		
CS3318 Advanced Programming with Java	5		

CS3509 Theory of Computation	5		
ST3053 Stochastic Modelling I	5		
ST3061 Statistical Theory of Estimation	5		
ST3069 Generalised Linear Models	5		
ST3070 Statistical Theory of Hypothesis Testing	5		

Year 4 Modules – 60 credits

Core Modules – 45 credits	Credits	Elective Modules – 15 credits	Credits
CS4701 Analytics Project for Computer Science	15	AM2061 Computer Modelling and Numerical Techniques	5
OR		AM3064 Computational Techniques	5
ST4092 Data Analytics Project	15	AM4006 Mathematical Modelling of Biological Systems with Differential Equations	5
AND		AM4010 Topics in Applied Mathematical Modelling	5
CS4704 Algorithms and Data Structures for Analytics	5	CS4150 Principles of Compilation	5
CS4705 Computational Machine Learning	5	CS4405 Multimedia Compression and Delivery	5
ST4060 Statistical Methods for Machine Learning I	5	CS4407 Algorithm Analysis	5
ST4061 Statistical Methods for Machine Learning II	5	CS4413 Future and Emerging Technologies	5
ST4069 Multivariate Methods for Data Analysis	10	CS4614 Introductory Network Security	5
		CS4615 Computer Systems Security	5
		CS4616 Distributed Algorithms	5
		CS4620 Functional Programming I	5
		CS4626 Constraint Programming and Optimisation	5

		CS4710 Programming Paradigms for Big Data	5
		ST3054 Survival Analysis	5
		ST4064 Time Series	5

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 Data Science and Analytics start on 29/9/2022 for 1st year students. Timetables are available at <http://timetable.ucc.ie>, select College of Science, Engineering, Food Science and Semester 1/2.

Commented [m4]: Mention the start date for no 1st years?

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

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/>.

If you have any questions, queries or need a little bit of advice, you can email csisolas@cs.ucc.ie.

IT Support for BSc DSA

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.

As a BSc DSA student you will have classes in both the School of Computer Science labs and in the Department of Statistics labs.

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

In order to manage printing facilities effectively, you will be allocated a Print Quota. Your logon entitles you to print 150 pages, with a charge of 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.

Statistics Lab Support

If you have any IT queries regarding the Statistics Labs, please see the “IT Help for Students” link at: www.ucc.ie/en/matsci or contact us at it.maths@ucc.ie .

Please note that you should use your entire UCC student email address and password to log onto pcs within our labs.

Your statistics lecturers will assist you with software queries.

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.

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, Rm 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

Message regarding COVID 19

The university are planning full on campus delivery for 2022/23.

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/coronavirus/>

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.

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. Please alert your lecture(s) also.

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

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 <http://www.ucc.ie/en/students/policies/>

Acceptable Usage Policy <https://www.ucc.ie/en/it-policies/policies/au-pol/>

Student Health Service <https://www.ucc.ie/en/studenthealth/>

UCC Emergency Tel. 021-490[3111]

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

School of Computer Science and Information Technology

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.

School of Mathematical Sciences

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

Contact Details:

Michelle Glynn

Phone: +353 21 4205817

Fax: +353 21 4205367

Email: sms@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.

The School Office is situated in Room 1.57 on the First Floor of the Western Gateway Building.

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

School of Computer Science and Information Technology

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 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 Harry Nguyen	420-5892	1-77	h.nguyen@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	cjs@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 Andrea Visentin	420-5909	G-71	Andrea.visentin@ucc.ie
Dr Ahmed Zahran	420-5926	1-82	a.zahran@cs.ucc.ie

School of Mathematical Sciences

Lecturing Staff	Tel No	Room No.	Email
Dr Andreas Amann	420-5837	1-45	a.amann@ucc.ie
Dr Tom Carroll	420-5811	1-63	t.carroll@ucc.ie
Dr Purnima Chaudhry	420-5814	1-66	purnima.chaudhry@ucc.ie
Dr Alan Compelli	420-5813	1-65	alan.compelli@ucc.ie
Dr Michael Cronin	420-5825	1-47	m.cronin@ucc.ie
Ms Linda Daly	420-5851	1-44	linda.daly@ucc.ie
Dr Spyridon Dendrinios	420-5845	1-64	sd@ucc.ie
Dr Tony Fitzgerald	420-5860	1-69	t.fitzgerald@ucc.ie
Prof. Bernard Hanzon	420-5839	G-40	b.hanzon@ucc.ie
Dr Kevin Hayes	420-5996	1-53	kevin.hayes@ucc.ie
Dr David Henry	420-5861	1-61	d.henry@ucc.ie
Dr Jian Huang	420-5831	G-38	j.huang@ucc.ie
Dr Andrew Keane	490-3000	G-46	andrew.keane@ucc.ie
Dr Cónall Kelly	420-5848	1-67	conall.kelly@ucc.ie
Mr Finbarr Kiely	420-5863	1-42	finbarr.kiely@ucc.ie
Dr Claus Koestler	420-5856	1-59	claus@ucc.ie
Dr Ben McKay	420-5838	G-39	b.mckay@ucc.ie
Dr Kieran Mulchrone	420-5822	1-42	k.mulchrone@ucc.ie
Dr Anca Mustata	420-5852	1-46	a.mustata@ucc.ie
Dr Andrei Mustata	420-5842	G-37	andrei.mustata@ucc.ie
Dr Rabia Naqvi	420-5848	1-67	rnaqvi@ucc.ie
Prof. Finbarr O'Sullivan	420-5836	G-35	f.osullivan@ucc.ie

Dr Kathleen O'Sullivan	420-5812	1-58	kathleen.osullivan@ucc.ie
Dr Supratik Roy	420-5844	G-36	s.roy@ucc.ie
Prof. Sebastian Wieczorek	420-5828	G-49	sebastian.wieczorek@ucc.ie
Dr Stephen Wills	420-5859	1-60	s.wills@ucc.ie
Dr Eric Wolsztynski	420-5823	1-43	eric.w@ucc.ie

Important Website Links

Book of Modules: <http://www.ucc.ie/modules/>

College Calendars:

<https://www.ucc.ie/admin/registrar/calendar/science/sci027.html#CK411>

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