

Taught Postgraduate Programmes Handbook 2021 – 2022

School of Computer Science and
Information Technology
University College Cork

<http://www.ucc.ie/en/compsci/>

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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/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:

- 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 director and lecturers, UCC has many services available to support students.

SUPPORTING UCC STUDENTS IN 2020/21

SUPPORT TREE SHOWING STUDENT SERVICES

The “Acorn to Mighty Oak” has come to symbolise students’ academic, personal and professional development journey throughout their time at UCC. In alignment with this rich metaphor, the support services available to students are presented in the form of a **Support Tree**.

This tree depicts the support services currently available to students and provides links to further information about each service.



1 School of Computer Science and Information Technology

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 here. Today, the School of Computer Science is one of the largest academic Schools in UCC. The School offers degrees at BSc, Higher Diploma, MSc and PhD levels.

Our School is housed in the five-storey Western Gateway Building, which is located on Western Road, with excellent road frontage to the north and a scenic river setting on its southern side. The site is in close proximity to the UCC Mardyke Sports Centre. 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.

1.1 Academic Year 2020-21, UCC

| | |
|--------------------------------------|---|
| Autumn Semester (Semester 1): | <i>Monday 13th September – Friday 3rd December 2021</i> |
| Study Period: | Monday 6th December – Thursday 9th December 2021 |
| Semester 1 Assessments: | Friday 10th December – Tuesday 21st December 2021 |
| Christmas Recess: | Wednesday 22nd December – Sunday 16th January 2022 |
| Spring Semester (Semester 2): | Monday 17th January – Friday 8th April 2022 |
| Easter Recess: | Monday 11th April – Sunday 24th April 2022 |
| Study Period: | Monday 25th April – Thursday 28th April 2022 |
| Final Examinations: | Friday 29th April – Friday 13th May 2022 |

*Please be aware that Computer Science exams for the MSc Computer Science and MSc Data Science and Analytics are run by the School. As such, the exam period will be different than what is stated above. You will receive an exam timetable early in each semester.

1.2 School Office

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

Fax: +353 21 4205367

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.

NOTE: during the COVID 19 pandemic attendance at the office is by appointment only.

1.3 Timetables

All courses start on **13th September, 2021**. Timetables for our Taught Postgraduate Courses are available in the course pages on the School of Computer Science and Information Technology website here:

<https://www.ucc.ie/en/compsci/incomingstudents/tpostgraduate/>

Please note that the timetables may be altered and updated over the first weeks of Semesters I and II. Make sure to check your timetable regularly.

1.4 IT Support

Due to updates COVID guidelines for the 2021-2022 academic year, IT support for Computer Science students will be via email. In the rare event that you have IT support issues that cannot be addressed via email, there will be limited face-to-face support and strictly by appointment.

If you have any IT queries you should contact the Computer Science IT Support Desk at help@cs.ucc.ie. Visit the Computer Science IT Support webpage for helpful technical guidance <http://www.cs.ucc.ie/help>

1.5 Laboratory and Computer Access

You will be provided with a Login ID and Password in order to access the School's main servers and services.

Your lecturer will advise if your module requires lab access. If a module entails lab access, access to our computer laboratories is by Swipe Access, for which you will need a valid Student ID Card, which you will receive at Registration. If you have difficulties in using your swipe access, please check with the Computer Science IT Support Desk.

1.6 Print Quota

Print facility is available in Western Gateway Building Room G.23. See <https://www.ucc.ie/en/sit/oncampusservices/printing/> for advice on printing.

2 Accommodation

UCC Studentpad is UCC's student accommodation search engine. Here you can search for UCC campus accommodation or privately offered accommodation: <https://studentpad.ucc.ie/Students>

3 Introduction to Taught Postgraduate Programmes

The School constantly updates its portfolio of postgraduate courses to meet the changing needs of industry. Currently on offer are three one-year Taught Masters Programmes and a 1-year higher diploma. Some of these programmes are also offered as part-time programmes. Our courses provide graduates with the opportunity to obtain advanced skills in specific targeted areas that are important to the growth of the knowledge economy.

All postgraduate programmes are described in full detail in Sections 4–7 of this booklet. Students should take particular note of the structure and regulations of their course.

4 Higher Diploma in Applied Computing Technology

The Higher Diploma in Applied Computing Technology is a conversion course open to all graduates from non-computing disciplines and other applicants with suitable experience who wish to up-skill. This course prepares students for a productive career in applying computing technology in today's knowledge economy. It provides students with an understanding of the principles of Internet-based computer systems and will equip students with a range of core IT skills including web design; web server configuration; managing and manipulating multimedia content; interfacing with databases; working with common office software.

4.1 Programme Director

The Programme Director of the Higher Diploma in Applied Computing Technology is Dr Marc van Dongen. His contact details are as follows:

Dr Marc van Dongen: Room G-64
Western Gateway Building, UCC
Phone: +353-21-4205903
Email: director-hdact@cs.ucc.ie

4.2 Further Study

Higher Diploma students graduating with an overall First Class Honours are eligible to apply for the MSc in Computing Science, which is a one-year programme that is offered by our School.

4.3 Detailed Course Descriptions

Details of all our Postgraduate Courses are available in the College Calendar, which describes the entry requirements, Semester dates, modules, and so on. The College Calendar may be found at <https://www.ucc.ie/admin/registrar/calendar/postgraduate/Diploma/Science/page14.html>

The authoritative source of individual modules is UCC's Book of Modules, which may be found at <http://www.ucc.ie/modules/descriptions/CS.html>

Students should study and be familiar with the Marks & Standards information for their programme. The Marks & Standards may be found at <http://www.ucc.ie/admin/registrar/marksandstandards/>

4.4 Attendance

All students are required to attend all scheduled lectures, tutorials, and laboratory classes whether online or in person, here is a link to lecture timetables:

<https://www.ucc.ie/en/compsci/currentstudents/tpostgraduate/hdac/>

Laboratory times will be updated at start of term.

4.5 Programme Structure

The Higher Diploma is offered as a 1-year full-time or 2-year part-time programme. Students take modules totalling 60 credits of taught modules.

Full-time: Students take 60 credits of taught modules; 30 credits in each of Semesters I and II.

Part-time: Students take 30 credits of taught modules in each of the two academic years (15 credits in each of Semesters I and II)

Year 1: CS5002, CS5018, CS5021, and CS5222

Year 2: CS5007, CS5008, CS5009, CS5019, CS5020 and CS5523

Module Descriptions Higher Diploma in Applied Computing Technology

CS5002 Web Development I (5 credits) – Dr Derek Bridge

CS5007 Computer Applications Programming (5 credits) – Dr James Doherty

CS5008 Internet Computing (5 credits) – Mr Adrian O’Riordan

CS5009 Multimedia (5 credits) – Dr Ahmed Zahran

CS5018 Web Development II (5 credits) – Dr Derek Bridge

CS5019 Computer Hardware Organization (5 credits) – Professor John Morrison

CS5020 Systems Organisation (5 credits) – Professor John Morrison

CS5021 Introduction to Relational Databases (5 credits) – Dr Steve Prestwich

CS5222 Introduction to Programming and Problem Solving (15 credits) – TBD

CS5523 Multimedia 2 (5 credits) – Dr James Doherty

4.6 Key Dates

Examinations will be set according to the official examination timetables of the university for 2020-21. See <https://www.ucc.ie/en/media/support/recordsandexaminations/documents/KeyDates2021-2022.pdf>

4.7 Examination Review

Students may view their exam results in a script viewing session in **June/July 2022**.

Students who need more feedback about the exam results may contact their lecturer, but they should refrain from trying to renegotiate the result.

Results for continuous assessment/assignments are made available within a reasonable amount of time from the assignment submission deadline. Students should contact their lecturer for results for their related module continuous assessments in the Semester these modules are taught.

4.8 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 online 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

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.

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

5 MSc Computing Science

Recent years have seen tremendous developments in the design and implementation of software and systems in both industrial and research settings. The MSc in Computing Science provides students with the skills required to appreciate the entrepreneurship and innovation required in the software industry. Core material covers areas such as: Advanced Information Storage and Retrieval; Case studies in Computing Entrepreneurship; Large-Scale Commercial and Research Application Development; Project Development skills. The programme allows students to select from a range of additional options that may include: Mobile Networks and Devices; Network Security; Virtualisation Technologies; Mobile Multimedia and Data Mining. The main aim of this programme is to provide graduates with the most up-to-date knowledge and skills required by employers to contribute to the knowledge economy.

5.1 Programme Director

The Programme Director of the MSc in Computing Science is Dr Marc van Dongen.

Contact details for Dr van Dongen are as follows:

Dr Marc van Dongen: Room G-64

Western Gateway Building, UCC

Phone: +353-21-4205903

Email: director-msccs@cs.ucc.ie

5.2 Detailed Course Descriptions

Details of all our Postgraduate Courses are available in the College Calendar, which describes the entry requirements, Semester dates, modules, and so on. The College Calendar may be found at www.ucc.ie/calendar/postgraduate.

The authoritative source of individual modules is UCC's Book of Modules, which may be found at <http://www.ucc.ie/modules/descriptions/CS.html>.

Students should study and be familiar with the Marks & Standards information for their programme. The Marks & Standards may be found at <http://www.ucc.ie/admin/registrar/marksandstandards/>.

5.3 Attendance

All students are required to attend all scheduled lectures, tutorials, and laboratory classes whether online or in person, here is a link to lecture timetables:

<https://www.ucc.ie/en/compsci/currentstudents/tpostgraduate/msccs/>

Laboratory times will be provided at start of term.

5.4 Programme Structure

The Masters Degree consists of 90 credits. This comprises taught modules totalling 60 credits, which are taught in Semesters I and II, and a research/development project totalling 30 credits, which will be completed from the start of May through the start of September. The 60 credits of taught modules comprise 30 credits of core modules and 30 credits of elective modules. Students are required to seek approval of the Head of School for their choice of elective modules, following consultation with the programme director. We will contact you at the start of each semester regarding your elective selection. Laboratory work will be associated with many of the modules. Most modules have mid-semester and end-of-semester examinations. Module titles may be found below.

Module Descriptions MSc Computing Science

Core Modules

- CS6403** Case Studies in Computing Entrepreneurship (5 credits) – Dr John Herbert
- CS6408** Database Technology (5 credits) – Mr Cathal Hoare
- CS6409** Information Storage and Retrieval (5 credits) – Mr Cathal Hoare
- CS6410** Project Development Skills (5 credits) – Dr Ahmed Zahran
- CS6422** Complex Systems Development (5 credits) – Dr Klaas Jan Stol
- CS6423** Scalable Computing for Data Analytics (5 credits) – Professor Gregory Provan
- CS6400** Dissertation in Computing Science (30 credits)

Elective Modules Group I

- CS6312** Mobile Devices and Systems (5 credits) – Dr Dan Grigoras
- CS6314** Mobile Applications Design (5 credits) – Dr Sabin Tabirca
- CS6320** Formal Methods for Distributed Systems (5 credits) – Dr John Herbert
- CS6321** Model-Based Software Development (5 credits) – Dr John Herbert
- CS6322** Optimisation (5 credits) – Dr Steve Prestwich
- CS6420** Topics in Artificial Intelligence (5 credits) – Professor Barry O’Sullivan

Elective Modules Group II

- CS6313** Services and Mobile Middleware (5 credits) – Dr Dan Grigoras
- CS6315** Mobile Systems Security (5 credits) – Dr Paolo Palmieri
- CS6317** Multimedia Technology in Mobile Networks (5 credits) – Dr Sabin Tabirca
- CS6325** Network Security (5 credits) – Dr Paolo Palmieri
- CS6327** Internet of Things: Technology and Application (5 credits) – Professor Dirk Pesch
- CS6405** Data Mining (5 credits) – TBD
- CS6421** Deep Learning (5 credits) – Professor Gregory Provan
- CS6424** Special Topics in Computing Science I – TBD (This module may not be available this year)
- CS6425** Special Topics in Computing Science II – Dr Steve Prestwich
- CS6426** Data Visualization for Analytics Applications – Dr Rosane Minghim

Note: Not all elective modules may be offered in a particular year.

Research Phase (After Semester II)

CS6400 Research and Development Project (30 credits)

This project can be industry-led/based giving the student a real opportunity to apply their knowledge to a real-life industrial problem.

5.5 Summary of Programme Regulations

This MSc is a full-time Taught Masters Degree programme running for 12 months from the date of first registration. Students take taught modules in teaching Semesters I and II, followed by a research project from May – September. Students will have completed all taught modules and related examining prior to commencing the research project. Students who achieve an aggregate of at least 60%, with not less than 40% in each module, at their first attempt across the taught modules are deemed eligible to proceed to the Research Project. Students failing to reach this standard but who achieve an overall pass in the taught modules graduate with a Postgraduate Diploma (Applied Computing Science). Students may also opt to graduate with a Postgraduate Diploma as long as they have achieved an overall pass mark. Students may repeat failed modules in the Autumn.

5.6 Key Dates

Most modules have mid- and end-of-semester in-class tests/exams. The dates of these tests will be announced well in advance by our staff. Examinations will take place outside the official university examinations timetable. We advise that you take a look at the following link:

<https://www.ucc.ie/en/media/support/recordsandexaminations/documents/KeyDates2021-2022.pdf>

5.7 Examination Review

Students may view their exam results for Semester 1 in a script viewing session in **February 2022**. The script viewing for Semester 2 modules will then be held in **June/July 2022**.

Students will be informed about a script viewing session by email.

Results for continuous assessment/assignments are made available within a reasonable amount of time from the assignment submission deadline. Students should contact their lecturer for results for their related module continuous assessments in the Semester these modules are taught.

5.8 Minor Thesis/Research Project

As part of the taught MSc programmes in the School of Computer Science, eligible students of the MSc Computing Science are required to undertake a project leading to a minor thesis submission. The purpose of the project is to allow the student to acquire basic research skills and to demonstrate an ability to perform independent research.

There are several distinct phases to this process: project proposal, project selection, literature review, project execution, project presentation and project submission. The following sections explain these phases in more detail.

5.8.1 Project Proposal

In **December** the programme director provides a list of projects that are proposed by members of academic staff. At that stage students should arrange to meet the project proposers to gain a better understanding of the project requirements and to access their level of interest. Students are also welcome to approach individual members of academic staff with project proposals of their own. Academic staff have the final decision on which projects to supervise and which students they accept for the projects they propose.

5.8.2 Initial Project Selection

Students select a supervisor and a topic, or a topic area, for their Final Project before **Friday, January 28th 2022**. They should inform their programme director about their project details and project supervisor by email. The subject title of the email should be "PROJECT SELECTION DETAILS" (all uppercase).

5.8.3 Literature Review

To prepare students for their Thesis Project, students carry out a literature survey in Semester II about the general topic area of their Thesis Project. This is done as part of CS6410, which is one of the taught modules.

5.8.4 Final Project Selection

By the end of Semester II, students must have agreed with their supervisors on a Final Project title, description and timetable.

5.8.5 Project Execution

The student will work on the project in three phases:

May: Commence work on project; weekly meetings with project supervisor;

July – start of August: Independent project research;

End of August/Early September: Final discussions with project supervisor, finalising thesis write-up.

4th September: Electronic thesis submission

5th to 9th September: Project presentation.

5.8.6 Project Presentation

Students formally make a 10 minute presentation of their project. The presentation consists of 7 minutes computer presentation and a 3 minutes question-and-answers session. **Students give their presentations in the last week of the academic year.** Students are supposed to attend all other presentations. Dates are subject to change. Students will be informed by the programme director.

5.8.7 Project Submission

Students should submit **an electronic version** of their thesis at the end of **at the end of the second last week of the Academic Year**. Please consult the CS6400 Canvas pages for the exact details. Theses should be submitted using the School Canvas Site for CS6400. **Two soft bound copies** should be submitted to the School Office (Room 1.26, Western Gateway Building, UCC) no later than 5.00 p.m. on the Wednesday following the submission deadline of the electronic version.

5.9 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, provided it is made clear which parts were used/modified/added. 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

6 MSc Data Science & Analytics

The MSc in Data Science & Analytics, jointly offered by the School of Computer Science and the School of Statistics, provides an education in the key principles of this rapidly expanding area. The combination of sophisticated computing and statistics modules will develop skills in database management, programming, summarisation, modelling and interpretation of data. The programme provides graduates with an opportunity, through development of a research project, to investigate the more applied elements of the disciplines.

At all times the programme stresses the importance of data science, statistics and probability theory as key tools in the analysis of large-scale heterogeneous data. Companies currently seeking graduates with data analytics skills include firms specialising in analytics, financial services and consulting as well as governmental agencies and Schools.

6.1 Programme Director

The Programme Directors of the MSc in Data Science & Analytics are Dr Ahmed Zahran and Dr Eric Wolsztynski. Their contact details are as follows:

Dr Ahmed Zahran, Room 1-82
Western Gateway Building, UCC
Tel: +353 21 4205926

Dr Eric Wolsztynski, Room 1-43
Western Gateway Building
Tel: +353 21 4205823

Email: director-mscdsa@cs.ucc.ie

6.2 Detailed Course Descriptions

Details of all our Postgraduate Courses are available in the College Calendar, which describes the entry requirements, Semester dates, modules, and so on. The College Calendar may be found at www.ucc.ie/calendar/postgraduate

The authoritative source of individual modules is UCC's Book of Modules, which may be found at:

Computer Science: <http://www.ucc.ie/modules/descriptions/CS.html>

Statistics: <https://www.ucc.ie/admin/registrar/modules/?prefix=ST>

Students should study and be familiar with the Marks & Standards information for their programme. The Marks & Standards may be found at <http://www.ucc.ie/admin/registrar/marksandstandards/>

6.3 Attendance

All students are required to attend all lectures, tutorials, and laboratory classes whether online or in person, here is a link to lecture timetables:

<https://www.ucc.ie/en/compsci/currentstudents/tpostgraduate/mscdsa/>

Laboratory times will be updated at start of term.

6.4 Programme Structure (Full-time)

The Masters Degree consists of 90 credits. This comprises taught modules totalling 60 credits and a research/development project totalling 30 credits. The 60 credits of taught modules comprise 30 credits of core modules and 30 credits of elective modules. Students are required to seek approval of the Head of School for their choice of elective modules, following consultation with the programme director. Laboratory work will be associated with many of the modules. Most modules have mid-semester and end-of-semester examinations. Module titles may be found below.

Module Descriptions MSc Data Science & Analytics

Core Modules (30 credits)

All selections are subject to approval of the programme director.

CS6405 Data Mining (5 credits) – TBD

CS6421 Deep Learning (5 credits) – Professor Gregory Provan

ST6030 Foundations of Statistical Data Analytics (10 credits) - Dr Michael Cronin & Dr Supratik Roy

ST6033 Generalised Linear Modelling Techniques (5 credits) – Dr Michael Cronin

Database Modules

Students who have **adequate** database experience take:

CS6408 Database Technology (5 credits) – Mr Cathal Hoare

Students who have **not** studied databases take:

CS6503 Introduction to Relational Databases (5 credits) – Dr Kieran Herley

Elective Modules (30 credits)

All selections are subject to approval of the programme director.

Students must take at least 10 credits of CS (Computer Science) modules and at least 10 credits of ST (Statistics) modules from those listed below:

CS6322 Optimisation (5 credits) – Dr Steve Prestwich

CS6409 Information Storage and Retrieval (5 credits) – Mr Cathal Hoare

CS6420 Topics in Artificial Intelligence (5 credits) – Professor Barry O’Sullivan

CS6426 Data Visualization for Analytics Applications – Dr Rosane Minghim

ST6034 Multivariate Methods for Data Analysis (10 credits) – Professor Finbarr O’Sullivan

ST6035 Operations Research (5 credits) – Professor Finbarr O’Sullivan

ST6036 Stochastic Decision Science (5 credits) – Dr Linda Daly

ST6040 Machine Learning and Statistical Analytics I (5 credits) – Dr Eric Wolsztynski

ST6041 Machine Learning and Statistical Analytics II (5 credits) – Dr Eric Wolsztynski

Programming:

Students with **adequate** programming experience take:

CS6422 Complex Systems Development (5 credits) – Dr Klaas Jan Stol

CS6423 Scalable Computing for Data Analytics (5 credits) – Professor Gregory Provan

Students who have **not** studied programming take:

CS6506 Programming in Python (5 credits) – Dr Kieran Herley

CS6507 Programming in Python with Data Science Applications (5 credits) – Dr Kieran Herley

Minor Thesis/Research Project (Summer)

Students can choose a dissertation focusing on computing (CS6500) or statistics (ST6090)

CS6500 or ST6090 Dissertation in Data Analytics (30 credits)

Note: Not all elective modules may be offered in a particular year.

6.5 Summary of Programme Regulations

This MSc is a full-time Taught Masters Degree programme running for 12 months from the date of first registration. Students take taught modules in teaching Semesters I and II, followed by a research project from June-September. Students will have completed all taught modules and related examining prior to commencing the research project. Students who achieve an aggregate of at least 60%, with not less than 40% in each module, at their first attempt across the taught modules are deemed eligible to proceed to the Research Project. Students failing to reach this standard but who achieve an overall pass in the taught modules graduate with a Postgraduate Diploma (Data Science and Analytics). Students may also opt to graduate with a Postgraduate Diploma as long as they have achieved an overall pass mark.

6.6 Key Dates

Mid-semester and end of module examinations schedule will be communicated at the start of each semester by the School's Academic Administrator. Examinations take place outside of the university timetable. We advise that you take a look at the following link:

<https://www.ucc.ie/en/media/support/recordsandexaminations/documents/KeyDates2021-2022.pdf>

6.7 Examination Review

Students may view their Computer Science exam results for Semester 1 in a script viewing session in **February 2022**. The script viewing for Semester 2 modules will then be held in **June/July 2022**.

Students will be informed about a script viewing session. At that point you can contact the email address we will provide.

Results for continuous assessment/assignments are made available within a reasonable amount of time from the assignment submission deadline. Students should contact their lecturer for results for their related module continuous assessments in the Semester these modules are taught.

6.8 Project Proposal

6.8.1 Project Selection

Project Selection will take place in Semester II after the Semester II exams. Project proposals will be posted online, the link to which will be provided close to the end of Semester II exams. Students are expected to promptly explore these projects and to contact their prospective supervisors by email to further discuss the details of the projects. The supervisor has the final say on who will be assigned the project.

6.8.2 Project Execution

The student will work on the project in three phases:

June: Commence work on project; weekly meetings with project supervisor;

July – August: Independent project research;

End of August/Early September: Final discussions with project supervisor, finalising thesis write-up, project presentation and electronic thesis submission.

6.8.3 Project Submission

Students should submit **an electronic version** of their thesis **early September 2022**. Details on how to submit your thesis will be made available to students at a later date.

6.9 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.

7 MSc Interactive Media

The MSc in Interactive Media explores the opportunities made possible by interactive digital technologies. It is a conversion course and open to graduates of any discipline. It is offered on a 1-year full-time and on a 2-year part-time basis. The aim is to produce graduates who have a thorough understanding of the underlying concepts, technologies and practices of interactive digital media and who can design, author and deliver interactive media projects. The course develops skills and understanding in digital technologies and the software tools used to author interactive media projects.

The MSc Interactive Media qualifies under the Graduate Skills Conversion Programme

7.1 Programme Director

The Programme Director of the MSc in Interactive Media is Mr David Murphy. His contact details are as follows:

Mr David Murphy: Room 1.77
Western Gateway Building, UCC
Tel: +353 21 4205908
Email: director-mscim@cs.ucc.ie

7.2 Facilities

Facilities available for use in laboratory and project work include:

- Dedicated laboratories of Apple computers equipped with graphics, animation, video, audio and VR software;
- A professional audio studio, equipped with midi controllers, synthesisers, samplers, computers with sequencing, and a 24-track digital recording facility;
- Video production laboratories equipped with video editing suites;
- Virtual-reality laboratory equipped with workstations, head-mounted displays, data-gloves, 3D-Scanners, tactile sensors and tactile feedback devices etc.;
- A range of portable audio-visual recording equipment, such as lighting equipment, digital still & video cameras, etc.

7.3 Detailed Course Descriptions

Details of all our Postgraduate Courses are available in the College Calendar, which describes the entry requirements, Semester dates, modules, and so on. The College Calendar may be found at www.ucc.ie/calendar/postgraduate

The authoritative source of individual modules is UCC's Book of Modules, which may be found at <http://www.ucc.ie/modules/descriptions/CS.html>

Students should study and be familiar with the Marks & Standards information for their programme. The Marks & Standards may be found at

<http://www.ucc.ie/admin/registrar/marksandstandards/>

7.4 Attendance

All students are required to attend all lectures, tutorials, and laboratory classes, here is a link to lecture timetables:

<https://www.ucc.ie/en/compsci/currentstudents/tpostgraduate/mscim/>

Laboratory times will be updated at start of term.

7.5 Programme Structure (Full-time)

The full-time programme is a 1-year programme. Full-time students take 12 taught modules (60 credits) and a substantial project (30 credits). The module that may be taken can be found below.

7.6 Programme Structure (Part-time)

The part-time programme is a 2-year programme. Part-time students take 3 core modules (15 credits) and 3 elective modules (15 credits) in each year, for a total of 12 separate modules over the two years (60 credits). They take a Research Project in the second year (30 credits). The module that may be taken can be found below.

Module Descriptions MSc Interactive Media

Core Modules

Full-time students are required to take the following 30 credits of core modules. Part-time students are required to take three of the following core modules in each year (15 credits), for a total of six separate modules over the two years (30 credits).

CS6100 Authoring (5 credits) – Dr John O’Mullane

CS6101 Web Development for Digital Media (5 credits) – Dr Frank Boehme

CS6102 Graphics for Interactive Media (5 credits) – Dr Sabin Tabirca

CS6103 Audio and Sound Engineering (5 credits) – Mr David Murphy

CS6104 Digital Video Capture and Packaging (5 credits) – Dr Ian Pitt

CS6111 3D Graphics and Modelling (5 credits) – Mr David Murphy

Full-time and part-time students are required to take a project as follows:

CS6200 Dissertation in Interactive Media (30 credits)

and

Full-time students are required to take 30 credits from the following elective modules. Part-time students are required to take three of the following elective modules in each year (15 credits), for a total of six separate modules over the two years (30 credits).

CS6105 Future and Emerging Interaction Technologies (5 credits) – Mr David Murphy

CS6113 Internet-based Applications (5 credits) – Dr Frank Boehme

CS6114 Digital Video Compression and Delivery (5 credits) – Dr John O’Mullane

CS6115 Human Computer Interaction (5 credits) – Dr Ian Pitt

CS6116 Mobile Multimedia (5 credits) – Dr Sabin Tabirca

CS6117 Audio Processing (5 credits) – Mr David Murphy

Note: Not all elective modules may be offered in a particular year. Where a student has already taken one of the programme modules, or there is significant overlap with a module from a previous course of study, students may be assigned to **CS6121** Interactive Media Special Project in lieu of that MSc module as determined by the Programme Director."

7.7 Minor Thesis/Research Project

As part of the MSc in Interactive Media programme, students are required to undertake a substantial digital media project, which builds upon the skills that have been introduced in the taught part of the programme, leading to a minor thesis submission. The purpose of the project is to allow the student to demonstrate skills in the analysis, design, implementation and evaluation of interactive media products. There are several distinct phases to this process, which are explained as follows.

7.8 Project Selection

In Semester 2 students choose from a list of projects that are suggested by members of academic staff, third parties or by the students themselves. At that stage students should arrange to meet the project proposers to gain a better understanding of the project requirements and to assess their level of interest. Students are also welcome to approach individual members of academic staff with project proposals of their own. Academic staff have the final decision on which students they accept for the projects they propose. **The deadline to select a project will be specified by the programme director.**

7.8.1 Project Proposal Submission

Students are required to prepare a *detailed* project proposal for their chosen project. The proposal must contain:

- A summary of the major elements of the project and the technologies to be used for each of them;
- A background survey of the project elements, including a discussion of similar work, novel aspects of the project and likely constraints;
- A statement outlining the resources required to achieve the project deliverables; and
- A schedule for the work.

The deadline to submit a project proposal is Spring 2021.

7.8.2 Project Execution

The student works on the project full-time over the Summer Semester. For this project the student must work independently under the guidance of the supervisor. One of the project deliverables is the thesis. **The deadline for thesis submission is the first Friday of October. Students may be required to submit a soft copy electronically in advance of the final submission date.** Students will also be required to present their project at the scheduled Project Open Day.

7.9 Plagiarism

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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.

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- 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.

8 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

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. <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

9 List of Computer Science Lecturing Staff 2020-21

| 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 |
| Mr Cathal Hoare | | | hoare@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 |
| 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 |

10 List of Statistics Lecturing Staff 2020-21

| Lecturing Staff | Tel. No. | Room No. | Email |
|------------------------------|----------|----------|--|
| Dr Michael Cronin | 420-5825 | 1-47 | m.cronin@ucc.ie |
| Dr Linda Daly | | | linda.daly@ucc.ie |
| Professor Finbarr O'Sullivan | 420-5836 | G-35 | f.osullivan@ucc.ie |
| Dr Eric Wolsztynski | 420-5823 | 1-43 | eric.w@ucc.ie |