School of Computer Science & Statistics

MSc Computer Science
Mobile & Ubiquitous Computing
2016–2017
Dear Participant,

Welcome to the M.Sc. in Computer Science (Mobile and Ubiquitous Computing) and to Trinity College, if this is your first time studying here. You are going to have the opportunity to both immerse yourself in the culture and history of Ireland’s oldest University with its unique campus and vibrant student life as well as participating in a dynamic state-of-the-art course.

This booklet contains some important information on various aspects of the course – such as the dates of lecture terms, examination regulations and course outlines. The Calendar of Trinity College is used to regulate most issues relating to postgraduate studies. The information in this handbook clarifies statements in the Calendar in some important aspects, such as the definition of passing exams and coursework, and in respect of College requirements on plagiarism. Please take some time to read it carefully.

The course will be taught jointly by a team of lecturers. This booklet lists the modules and provides information on the lecturers and content of the modules. The most up-to-date information on each module, its goals and intended outcomes is available on the Programme website at: https://www.scss.tcd.ie/postgraduate/mobile-ubiquitous-computing/

I can be contacted by email at cd-mscmubicom@scss.tcd.ie or at 01-896-8423 throughout the year if you have any queries or problems in relation to the academic side of the course.

Sarah Smullen is the executive officer who administers the course; her email is Sarah.Smullen@scss.tcd.ie and her phone number is 01-896-3692. Administrative queries should be addressed to Sarah in the first instance.

The teaching assistant for the course will be Fatemeh Golpayegani and she can be contacted with all equipment requests (not technical support!) and for operational matters at golpayef@scss.tcd.ie.

I hope you find the programme both challenging and instructive, but it’s also important that you have a good time and enjoy your year in the course.

Best wishes for a great year,

Professor Stefan Weber
Course Director, MSc in Computer Science (Mobile and Ubiquitous Computing)
Assistant Professor
School of Computer Science and Statistics
TCD
# TABLE OF CONTENTS FOR COURSE HANDBOOK.
## M.S.C. IN COMPUTER SCIENCE (MOBILE AND UBIQUITOUS COMPUTING)

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Introduction

Mobile and Ubiquitous Computing technologies allow interconnected devices to be embedded unobtrusively in everyday appliances and environments, and to communicate and co-operate to provide information and services on behalf of their human users. The highly publicised “Internet of Things” is but one emerging exploitation of mobile technologies; indeed the development of Mobile and Ubiquitous computing applications and systems has been identified by many visionaries as a key enabling prerequisite for the evolution of the next generation of technologies.

The domain of mobile computing systems, which utilise advanced wireless communication technologies and offer personalised context aware services, is rapidly evolving. So-called "smart spaces", such as "smart homes", "smart offices" and "smart cities", seek to seamlessly integrate these technologies in support of improved quality of life for all citizens. Sensor-based and context-aware systems are becoming readily established in all areas of daily life, ranging from transportation to healthcare and from environmental monitoring to education and entertainment.

The individual technologies that comprise the Mobile and Ubiquitous computing vision increasingly underpin modern Computing and Engineering practice. Professional bodies, such as the ACM, have identified key research and educational themes, and associated skill sets, which are considered essential for domain practitioners. Expertise in networking and wireless communications, mobile software systems and development, knowledge management and technology innovation are increasingly sought by employers in the Information Technology sector.

The M.Sc. in Mobile and Ubiquitous Computing is carefully aligned to both the recommendations of the professional Engineering and Computer Science bodies, and to the expressed requirements of both employers and National policy. The programme encourages a strong entrepreneurial focus, and has proven popular with recent graduates and committed experienced professionals seeking an intensive, challenging and rewarding accelerant to their careers in the area.

Careers

Mobile and ubiquitous computing technologies including wireless communications, sensor-based systems, and context-aware systems, which can adapt to their users' preferences and current situation, are driving the deployment of the next generation of Information Technology, including the so-called “Internet of Things”. The rise of mobile computing systems based on wireless communications and offering personalised services is already evident. Sensor-based and context-aware systems will be found in all areas of daily life ranging from transportation to healthcare and from environmental monitoring to education and entertainment. So-called "smart spaces", such as "smart homes", "smart offices" and “smart cities”, have the potential to support improved quality of life for an increasingly aging population, to support rehabilitation from serious injuries, and to support lifelong learning outside the traditional classroom.

Development of mobile and ubiquitous computing applications to address these needs will therefore represent an increasingly important and valuable business, giving rise to
significant new opportunities for those with the skills to participate. Moreover, the individual technologies that comprise the mobile and ubiquitous computing vision are increasingly important in their own right. An understanding of wireless communications, personalisation and context awareness, and knowledge management will, increasingly, be a prerequisite for a career in the Information Technology industry.

**Goals of the Course**

Based on this experience, the School of Computer Science and Statistics at Trinity College Dublin offers a taught programme in Mobile and Ubiquitous Computing at the M.Sc. level. The primary goal of this programme is to equip graduate students from diverse backgrounds with an integrated set of skills that will allow them to develop their professional careers in this and related areas of Information Technology and to enable them to become leaders in their chosen field of specialization. The particular focus of the programme is to equip students with the theoretical and practical background that is necessary to enable them to participate in the design and deployment of mobile and ubiquitous computing solutions in a wide range of applications and environments.

The programme presents the state of the art in mobile and ubiquitous computing and targets the likely evolution of the domain. The focus is on skills that are not presently imparted to students during their undergraduate years, and that will develop graduates’ capacity as agents of change.

**Fees**

For details of fees for this course please go to:

**Course Structure**

The taught component of the M.Sc. programme will incorporate both taught and practical elements. M.Sc. students will also undertake an independent research project that will be submitted in the form of a dissertation (30 ECTS). The list of modules that may be offered to students includes:

1. Data Communications (5 ECTS)
2. Vision Systems (5 ECTS)
3. Middleware for Distributed Systems (5 ECTS)
4. Embedded Systems (5 ECTS)
5. Context Awareness (5 ECTS)
6. Human-Computer Interaction (5 ECTS)
7. Mobile & Ubiquitous Computing: State of the Art (5 ECTS)
8. Data Communications & Wireless Networking Practical (5 ECTS)
9. Software Engineering/Middleware Group Project (5 ECTS)
10. Mobile and Transient Security (5 ECTS)
11. Information Architecture (5 ECTS)
12. Business Innovation (5 ECTS)
12 core modules are offered each year, and taken by all students. Students are required to reach a full complement of 90 ECTS to be eligible for the award of the M.Sc. degree. Not all modules listed may be offered in a given academic year and may be replaced by alternatives.

**Taught Modules**

The modules being run this year are shown in Table 1. Each student takes all modules.

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<th>Module Code</th>
<th>Module Name</th>
<th>Module Coordinator</th>
<th>ECTS</th>
<th>Assessment</th>
<th>Semester</th>
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<td>CS7002</td>
<td>Data Communications</td>
<td>Mr. Paul Duggan</td>
<td>5</td>
<td>Examination plus coursework</td>
<td>1</td>
</tr>
<tr>
<td>CS7003</td>
<td>Middleware for Distributed Systems</td>
<td>Prof. Vinny Cahill</td>
<td>5</td>
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<td>1</td>
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<tr>
<td>CS7004</td>
<td>Embedded Systems</td>
<td>Prof. Jonathan Dukes</td>
<td>5</td>
<td>Examination plus coursework</td>
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<tr>
<td>CS7005</td>
<td>Context Awareness</td>
<td>Prof. Martin Emms</td>
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<td>Examination plus coursework</td>
<td>2</td>
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<tr>
<td>CS7006</td>
<td>Human-Computer Interaction</td>
<td>Prof. Gavin Doherty</td>
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<td>Examination plus coursework</td>
<td>1</td>
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<tr>
<td>CS7008</td>
<td>Vision Systems</td>
<td>Prof. Ken Dawson-Howe</td>
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<tr>
<td>CS7046</td>
<td>Information Architecture</td>
<td>Dr. Rob Brennan</td>
<td>5</td>
<td>Examination plus coursework</td>
<td>2</td>
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<tr>
<td>CS7047</td>
<td>Mobile and Ubiquitous Computing: State of the Art:</td>
<td>Prof. Stefan Weber</td>
<td>5</td>
<td>Coursework only</td>
<td>2</td>
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<td>CS7048</td>
<td>Data Communications and Wireless Networking Practical</td>
<td>Prof. Eamonn O’Nuallain</td>
<td>5</td>
<td>Coursework only</td>
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<td>CS7049</td>
<td>Software Engineering/Middleware Group Project</td>
<td>Prof. Siobhán Clarke</td>
<td>5</td>
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<td>CS7074</td>
<td>Mobile and Transient Security</td>
<td>Dr. Stephen Farrell</td>
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<td>Examination plus Coursework</td>
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<tr>
<td>CS7075</td>
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<td>Mr. Padraic Moran</td>
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**Table 1: Taught Modules**
Module Descriptions
Please refer to the website throughout the year for updates and refinements to these descriptors.

Data Communications – CS7002
The module aims to equip the student with in-depth knowledge of communication protocols by examining advanced concepts that address issues regarding mobility, scalability, connection management, infrastructure management, etc.

The module is taught as a combination of presentations and discussion in the areas of mobile communications, mobile ad hoc networks, delay tolerant networking, wireless sensor networks, information-centric networking and cognitive networks.

Specific topics for discussion may include:
- Delay-tolerant Networking
- Routing Protocols for MANETs
- Peer-to-Peer Overlays
- Content-Distribution Networks
- Content-centric Routing
- Information-centric Networking
- Active Networking
- Software-defined Networking
- OpenFlow
- Cognitive Networks

When students have successfully completed this module they should be able to:
- explain key concepts of communication protocols,
- analyse communication problems between devices connected by various media.

Middleware for Distributed Systems – CS7003
The aim of this module is to expose students to the complexities involved in designing and building distributed applications and develop the student’s analytical skills; to gain in-depth understanding of the principal paradigms used in the area; and to gain an appreciation of the open research issues in the area.

The module covers the underlying theory and practice of distributed computing. A significant feature of the module is the use of an interactive teaching style in which students are encouraged to discover the fundamental principles of distributed computing by considering challenge problems collectively or in small groups before being presented with the relevant course material.

When students have successfully completed this module, they will be able to:
- recognise the complexities of distributed algorithms and have developed good problem solving skills in the area;
- apply classic distributed system algorithms and recognise the need for higher-level programming paradigms for the development of distributed applications;
- independently design and implement a distributed application.
Embedded Systems – CS7004
The module will give students the opportunity to gain the knowledge and skills necessary to develop embedded systems software. Students taking the module will study a real embedded hardware platform in depth (based on the widely used ARM7 microcontroller) and will use this platform in conjunction with industry-standard software tools to develop embedded systems of moderate complexity. Topics covered will be in the broad areas of computer architecture, systems software and I/O. Throughout the module, students will be given opportunities to consider issues of particular relevance in embedded systems design (e.g. development cost, power, performance and reliability).

On successful completion of the module, students will be able to:
- Describe the structure and operation of embedded systems, with particular emphasis on embedded system software, including embedded operating systems.
- Evaluate and describe the requirements of an embedded system for a specific application.
- Design, develop, test and evaluate small-scale embedded systems for a specific application using real-world hardware platforms (LPC2468 development board), programming tools (Keil ARM MDK) and systems software (FreeRTOS).
- Describe the operation and make use of peripheral modules and devices, including, for example, interrupt controllers, serial communication devices, LCD and touchscreen controllers and analogue-to-digital converters.
- Use appropriate literature, documentation and other resources to expand the knowledge that they can apply to the design, development and evaluation of embedded systems.

Context Awareness – CS7005
This module is intended to give the students a broad knowledge of techniques and methodology for building context aware and sensor driven applications. This module introduces both technologies for modelling knowledge and context in the presence of unreliability and uncertainty and also mathematical techniques which underpin such models. This course aims to increase the students understanding of these techniques allowing students to design and build more robust context aware applications.

The successful completion of this module will provide students with a good understanding of knowledge representation techniques applicable to small and large scale application scenarios. Students will also acquire knowledge of a number of techniques required to account for uncertainty and unreliability in building context-aware applications.
Human-Computer Interaction – CS7006

Students will understand the main issues underlying the usability of systems, and the main techniques and processes for interface design and evaluation. They will also gain a basic understanding of the theories which account for human performance.

The need to overcome the constraints which traditional desktop computing systems place on their users has driven much of the pioneering work in ubiquitous computing. Understanding usability in traditional and ubiquitous computing systems is a necessary step towards creating useful and usable systems, which overcome these limitations. The module will give students an understanding of usability problems in interactive system design, the reasons (cognitive and otherwise) underlying these problems and the methods which have been developed to address these issues within systems development. As part of this, it will cover interaction paradigms and conceptual models, methods for requirements gathering involving users, expert evaluations, and the interactive system visions which have driven research in ubiquitous computing.

On successful completion of this module students should be able to:

- Describe the concept of usability and the different facets of the problem.
- Outline available techniques for interaction design and usability improvement
- Assess when it is appropriate to apply these techniques within the software development process.
- Describe Norman's framework for interaction.
- Describe the challenges faced in the design of groupware systems, and the aspects of human communication which are relevant to these systems.
- Identify the factors which influence human performance, and the major concepts relevant to human error.
- Construct a Hierarchical Task Model (HTM) with an associated scenario description
- Discuss and critique the interface of a specific interactive system with reference to a task model and its associated scenarios.
- Design a simple usability testing experiment
- Identify the practical issues involved in conducting an experiment.

Vision Systems – CS7008

The aim of this module is to give students a firm understanding of the theory underlying the processing and interpretation of visual information and the ability to apply that understanding to ubiquitous computing and entertainment related problems. It provides them with an opportunity to apply their problem-solving skills to an area, which, while it is firmly part of computer science/engineering, draws strongly from other disciplines (physics, optics, psychology). The module is based around problems so that the technology is always presented in context and during some tutorials students work in groups to design solutions to real world problems using the techniques that they have been taught. In addition, the module has a significant practical component so that students can appreciate how difficult it can be to apply the technology.
Information and Knowledge Architecture – CS7046

The course is designed to explore the management, delivery and inter-operability of information and information systems. The course is not a typical database or information management course, but rather encourages students to perceive the challenges, technologies and solutions, in handling distributed, multi modal, heterogeneous information and knowledge.

The course focuses on WWW technologies (in particular semantic web technologies), to provide adaptive, agile handling of heterogeneous, ubiquitous information. The course includes such areas as integration of heterogeneous information repositories, schema (RDF) and semantic (e.g. ontology) representation and querying.

The main themes of the course are:

- Managing, integrating and transforming disparate information from heterogeneous sources
- Representing, Management, and Reasoning about semantics of information (and services)

On successful completion of this module students should be able to:

- compare and contrast different approaches to modelling information and knowledge
- model information and produce rich semantic models and ontologies
- describe how formal models that underly meta-data enable inference and reasoning
- survey the state of the art in semantic technologies and applications
- use sophisticated querying approaches to facilitate distributed information retrieval and aggregation

Mobile and Ubiquitous Computing: State of the art – CS7047

The principal aim of this module is to provide students with the techniques and understanding of reviewing published work that is related to their subject of their dissertation project. They will also have been exposed to the styles of references and the preparation of a bibliography.

Data Communications and Wireless Networking Practical – CS7048

The aim of this module is to introduce students to best practice research methodology and equip them with the knowledge to structure empirical research projects and to present results in an appropriate manner.

The course is delivered through a combination of lectures, student group work and practical research work. All students are divided into research groups and are assigned a research project. The projects have a practical focus and require students to design an experiment to test network technologies and to collect and present data. The focus is on empirical as opposed to simulation based studies. The process of designing, conducting and presenting empirical research facilitates self-directed learning for the students.

Students who complete this module should:

- Have experience working as a group to accomplish a significant technical challenge.
• Be able to write a research paper detailing their research project and results.
• Be aware of appropriate statistical tests and summaries given the type of data they have collected.

**Software Engineering / Middleware Group Project – CS7049**

The principal aim of this course is to provide students with experience of developing a large-scale distributed application. Upon completion of the course students will have gained experience of analysing, specifying, designing and implementing a large-scale distributed application, as part of a team. In addition to addressing debugging and testing challenges, they will also have been exposed to the challenges posed by communicating with team members, project management, code integration and demonstrating such an application.

In this module, students will undertake the design of a substantial distributed application in a team. When students have successfully completed this module, they will be able to participate in team-based design and implementation of a distributed application using an appropriate choice of programming model and software development process for that application. Students will be required to demonstrate:

- that a software process was applied appropriately,
- that appropriate measures were taken to ensure the quality of the code, and
- that appropriate distributed systems algorithms were applied.

When students have successfully completed this module they should be able to:

- analyse, specify, design, write and test a large-scale distributed application solving a complex problem;
- use a team-based software process;
- select and apply appropriate architectural model for the distributed application under development;
- select appropriate structuring mechanisms and data placement strategies for distributed applications;
- select and apply appropriate code quality techniques;
- document and demonstrate a distributed application;
- present application’s commercially innovative features to external assessors in a format similar to Dragons’ Den.

**Mobile and Transient Security – CS7074**

The objectives of this module are: to gain a realistic understanding of risk, as it applies in distributed systems; to understand the main tools available to control risk from and how to use those whether as a designer, operator, user or security analyst; and to enable the student to form opinions about issues such as full disclosure, some aspects of IPR (e.g. parts of DRM).

On successful completion of this module students should be able to:

- Describe the most commonly used security protocols (e.g. TLS, Kerberos);
- analyse cryptographic services in sufficient detail as to recognise which services to apply;
- explain risk and issues around disclosure.
Business Innovation – CS7011
The objectives of this module are to: understand the entrepreneur; understand innovation; appreciate the skills required to set up and manage a business; and know how to write and present a business plan.

The methods employed are a mixture of teaching, class discussions on topical subjects, lessons learned and practical brainstorming.

In collaboration with Citibank, external guest speakers and mentors are available to assist students with the execution of course objectives.

On successful completion of this module students should be able to:

- Identify factors involved in starting a business;
- Analyse some of the various models used to grow business;
- Employ the funding model, including the need for funds, and the mechanisms of raising funds;
- Write a business plan;
- Effectively present a business plan to a critical audience of investors and advisors.

Dissertation
Each student will undertake an individual research project leading to submission of a dissertation (30 ECTS credits), which is expected to be of a publishable standard, on a topic chosen in consultation with the Course Director.

<table>
<thead>
<tr>
<th>Code</th>
<th>Module Name</th>
<th>Coordinator</th>
<th>ECTS</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS7041</td>
<td>Research Dissertation</td>
<td>Prof. Stefan Weber</td>
<td>30</td>
<td>Two examiners (including your supervisor) plus the external examiner.</td>
</tr>
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</table>

At the end of the second semester, each student will be required to submit their work to date. It is expected that students will have completed a state of the art, and a detailed hypothesis for a solution to a stated research question.

Joint Dissertation Session with Industry
In previous years, we have organised a joint dissertation session with a number of the other M.Sc. programmes, to which we invite guests from industry. Students will be expected to present a poster illustrating their dissertation research. The poster should be prepared in consultation with the supervisor and be presented to the examiners at your oral examination. The School will print these posters in A0 for the Joint Dissertation Session. More details about the organisation of the event will follow, should we be in a position to organise a similar session for 2016/2017.
Assessment

The assessment rubric is published annually in the College Calendar.

Amendments to an assessment rubric will be advised to students by the School or Course Director in advance of any change being implemented.

Module specific assessment agreements (e.g. unplanned changes agreed locally between a lecturer and students) are expressly prohibited and have no standing, unless explicitly ratified by the School or Course Director and advised to students as such.

At the time of preparation the calendar rubric reads:

To be allowed to proceed to the dissertation leading to the degree of M.Sc. in Computer Science, candidates must (i) achieve a pass mark of at least 50% in the credit-weighted average mark for all taught modules, and ii) for modules amounting to not less than 50 credits achieve a mark of at least 50% in each individual module, and for modules amounting to not more than 10 credits achieve a mark of at least 40% in each individual module. Students who fail one or more modules may, at the discretion of the Court of Examiners, re-attempt through submission of supplementary assessment(s) by an appointed date or by sitting supplementary examination(s). The maximum mark awarded for supplementary assessment or examinations is 50%. To satisfactorily complete a dissertation, students must submit their dissertation by the prescribed date and must obtain a passing mark of 50% in their dissertation. The final mark for the course is based on a credit-weighted average of the mark awarded in each module, including the dissertation. In order to qualify for the award of M.Sc. with distinction, students must, as a minimum, achieve a mark of 70% or above in the dissertation, and achieve at least 68% in the unrounded overall average mark for the taught modules, and for modules amounting to not less than half the credits required for the taught component of the course, achieve a minimum mark of 70% in each individual module. A distinction cannot be awarded if a candidate has failed any credit during the period of study.

Students who pass the required modules but who are not permitted to or otherwise do not submit a dissertation, or who do not satisfactorily complete their dissertation, will be eligible for the award of a Postgraduate Diploma in Computer Science. The Postgraduate Diploma may be awarded with distinction to candidates who achieve at least 68% in the unrounded overall average mark for the taught modules and achieve a minimum mark of 70% in individual modules which together amount to at least half of the required credits for the award of the Postgraduate Diploma associated with the student’s registered course. All assessments and the dissertation will be subject to external review.
**Individual Work and Plagiarism**

It is important to highlight that all work submitted must be your own, and not taken directly from the internet or other sources. The College takes plagiarism seriously. The College regulations governing plagiarism are available in the college calendar and are copied in Appendix 12. You are expected to be familiar with these rules and to understand what is considered plagiarism.

Before beginning your first assignment, you must complete the online tutorial on avoiding plagiarism ‘Ready, Steady, Write’, located at

http://tcd-ie.libguides.com/plagiarism/ready-steady-write

You are also encouraged to use the College Library’s repository of resources on plagiarism and its avoidance at

http://tcd-ie.libguides.com/plagiarism

In the case of group work, groups should establish some mechanism to ensure that no member engages in plagiarism. Do not sign the Group Assignment Declaration if you have not assured yourself that the whole assignment is original.

Note that lecturers or the course director may submit any piece of submitted work to plagiarism detection tool(s) which detect any plagiarism of available material and of any other material previously submitted to the tool(s). (See www.TurnItIn.com for an example of such a tool)

**Attendance**

Students are expected to attend all lectures and scheduled activities and to attend all group work meetings.

**Research Ethics**

Any research project that involves human participation conducted through this course (for example, a questionnaire or survey, or system user-evaluation, etc.) must have independent review by a Research Ethics Committee before its commencement.

Individual applications are considered on their own merits. A basic principle is that prospective participants should be fully informed about the research and its implications for them as participants, with time to reflect on the possibility for participation prior to being asked to sign an informed consent form. Informing prospective participants fully includes declaring potential conflicts of interest that the researcher may have in conducting the research, detailing how participants may withdraw data associated with their participation from further analysis within the study, explaining the preservation of their anonymity within the study, warning them about potential consequences of discovery during the study of issues that would necessarily have precedence over assurances of anonymity, and so on.

Application forms, with guidelines, can be found here: https://www.scss.tcd.ie/postgraduate/ethics/
The Research Ethics Committee will consider each application and normally provide a response within two weeks but not more than one month later. You will not receive an automated acknowledgement that your application has been received (therefore, you can be certain that when you receive mail about your application, it has been addressed).

It takes time to prepare an application for research ethics approval, to have the application considered, and to respond to feedback on the application where issues are raised. You should plan in your work for the time it takes to obtain research ethics approval.

To apply for research ethics approval, you should email your application to research-ethics@scss.tcd.ie You will not receive an automated acknowledgement that your application has been received (therefore, you can be certain that when you receive mail about your application, it has been addressed).

All applications must be reviewed and signed by the research Supervisor or Principal Investigator on the project. This signature confirms an assertion that the application is complete in terms of its formal requirements; it does not stand as proxy for ethical approval. Forms which are not signed or presented to an acceptable standard (eg: incomplete; excessive typographical or grammatical errors) will be returned and may therefore incur delays for the researchers involved.

Retrospective approval will not be granted.

Please also note, research conducted in the School of Computer Science and Statistics should be undertaken with cognisance of the TCD Guidelines for Good Research Practice.

http://www.tcd.ie/about/policies/assets/pdf/TCDGoodResearchPractice.pdf

**Court of Examiners**

There are two meetings of the Court of Examiners each year. Usually these meetings take place at the end of May to assess the taught modules and the end of October to assess dissertations leading to an M.Sc.

Results from the Court of Examiners are posted on the notice board in the O’Reilly Institute following the meetings.

The Court of Examiners is comprised of lecturers on the course, the Course Director, the Director of Post-graduate Teaching and Learning of the School of Computer Science and Statistics, the external examiner and any dissertation supervisors or dissertation examiners who are not lecturers on the course.
Staff

Course Director
Prof. Stefan Weber (Stefan.Weber@scss.tcd.ie) Tel: 01-896-8423

Course Administration
Sarah Smullen (Sarah.Smullen@scss.tcd.ie) Tel: 01-896-896-3692
Main Departmental office of the Department of Computer Science Tel: 01-896-1765

Teaching Assistant
Ms. Fatemeh Golpayegani (golpayef@scss.tcd.ie)

External Examiner
Prof. Mario Gerla, UCLA, Los Angeles, California. USA

Lecturers
See Table 1.

Dissertation Supervisors
Dissertation supervisors are drawn from the academic staff at the School of Computer Science and Statistics. The School has an international reputation as a centre of excellence in networks and distributed systems, and has a number of research groups that have, traditionally, taken a keen interest in the M.Sc. in Computer Science (Mobile and Ubiquitous Computing). In particular, the following groups are likely to offer dissertation topics:

- The Distributed Systems Group (www.dsg.cs.tcd.ie)
- The Knowledge and Data Engineering Group (http://kdeg.cs.tcd.ie)
- The Graphics Vision and Visualisation Group (http://gv2.cs.tcd.ie/)
- The Computer Architecture Group (http://www.grid.ie)
Computer Facilities

The Information System Services (ISS) department is in charge of the computer facilities in the College except for dedicated facilities provided by the School of Computer Science and Statistics; for detailed information please see http://isservices.tcd.ie/.

When you register in College, you are given a username and password. This has been allocated to you by ISS. The School of Computer Science and Statistics receives a copy of these details and sets up an account for you on the School’s computer system. This account will have the same username and password that was given to you at registration.

Once you have your SCSS account you can use the School’s computing facilities. You will also be able to use any non SCSS computers. Labs that are non-SCSS are known as Public Access Labs.

Map of Public Access Labs in College: http://isservices.tcd.ie/facilities/map.php

For the locations of postgraduate Computer Science labs go to http://support.scss.tcd.ie/Location_of_the_postgraduate_labs

Lab Facilities & Lecture Theatres

A dedicated lab is set aside for the M.Sc. in Computer Science (Mobile and Ubiquitous Computing). This room (Lloyd 1.11) has been allocated for lab work and the computer facilities in this room are designated for use solely by students of the course.

Rosemarie Power and Ronan Healy currently manage the lab facilities. Rosemarie is responsible for the software setup of the lab machines and Ronan is maintaining the hardware in the lab.

Equipment

A list of equipment for the course is maintained by the teaching assistant. The teaching assistant is the first point of contact if you require specific equipment for your coursework or dissertation, and will either provide you with the equipment or direct you towards someone who will be able to assist you.

Email

Note that you will have two email accounts, one provided by ISS (username@tcd.ie) and one by the School (username@scss.tcd.ie). Messages sent to the SCSS account may be forwarded automatically to the @tcd account which you will access via myzone, a service provided by Google. See http://www.tcd.ie/itservices/ for details.

You are expected to read College mail messages regularly; ideally daily. E-mail is a key mechanism which school and programme staff will use to communicate with you.
Appendix 1: TCD Web links

There are many useful sites in TCD. Here are a number of them. If you find any other TCD links that you think would be useful for the class please e-mail the Course Co-ordinator.

<table>
<thead>
<tr>
<th>Site</th>
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<tr>
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<td>Library</td>
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<td>Graduate Student Union</td>
<td><a href="http://www.tcdgsu.ie/">http://www.tcdgsu.ie/</a></td>
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<tr>
<td>Postgraduate Advisory Service</td>
<td><a href="http://www.tcd.ie/Senior_Tutor/postgraduate/advisors/">http://www.tcd.ie/Senior_Tutor/postgraduate/advisors/</a></td>
</tr>
<tr>
<td>Computer Science and Statistics</td>
<td><a href="http://www.scss.tcd.ie">http://www.scss.tcd.ie</a></td>
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Appendix 2: Maps

Maps can be found online at http://www.tcd.ie/maps. Use the a-z search to find specific buildings.
Appendix 3: Student Information System (SITS)

ACCESS VIA my.tcd.ie

All communications from College will be sent to you via your online portal which will give you access to an ‘in tray’ of your messages. You will also be able to view your timetables online, both for your teaching and for your examinations. All fee invoices/payments, student levies and commencement fees will be issued online and all payments will be carried out online. You will be able to view your personal details – some sections of which you will be able to edit yourself. Up until now, all examination results were published online by the Examinations Office - in future, it is planned that your results will also be communicated to you via the online portal. Future plans for the new system include online module registration and ongoing provision of module assessment results.

Full user helpline facilities, including emergency contact details, will be available from when you register to guide you through these processes and to answer any queries that you may have.

Appendix 4: Postgraduate Advisory Service

The Postgraduate Advisory Service is a unique and confidential service available to all registered postgraduate students in Trinity College. It offers a comprehensive range of academic, pastoral and professional supports dedicated to enhancing your student experience.

Who?
The Postgraduate Advisory Service is led by the Postgraduate Support Officer who provides frontline support for all Postgraduate students in Trinity. The Postgrad Support Officer will act as your first point of contact and a source of support and guidance regardless of what stage of your Postgrad you’re at. In addition each Faculty has three members of Academic staff appointed as Postgraduate Advisors who you can be referred to by the Postgrad Support Officer for extra assistance if needed.

Contact details of the Postgrad Support Officer and the Advisory Panel are available on our website: http://www.tcd.ie/Senior_Tutor/postgraduate/

Where?
The PAS is located on the second floor of House 27. We’re open from 8.30 – 4.30, Monday to Friday. Appointments are available from 9am to 4pm.
Phone: 01-896-1417
Email: pgsupp@tcd.ie

What?
The PAS exists to ensure that all Postgrad students have a contact point who they can turn to for support and information on college services and academic issues arising. Representation assistance to Postgrad students is offered in the area of discipline and/ or academic appeals arising out of examinations or thesis submissions, supervisory issues, general information on Postgrad student life and many others. If in doubt, get in touch! All queries will be treated with confidentiality. For more information on what we offer see our website.

If you have any queries regarding your experiences as a Postgraduate Student in Trinity don’t hesitate to get in touch with us.
Appendix 5: Outline Table of Contents of Dissertation

This serves only as a guide and considerable variation is likely depending on the nature of the research undertaken.

**Cover page**
Not part of the thesis. Not to be included in the hardbound copy. To be submitted as a separate, signed loose page. MUST include the title, author name and plagiarism declarations.

**Abstract (single loose page)**
Not to be included in the hardbound copy. To be submitted as a separate, signed loose page. MUST include the title, author name, supervisor name and abstract.

**Indicative Dissertation Content**

**Chapter 1 Introduction**
This should be a short account of why you undertook the research, what the general state of knowledge was at the time you started and why you asked the questions that your research was expected to answer. It should clearly articulate your research question and briefly introduce the research undertaken. A brief reader’s guide to the dissertation should be included.

**Chapter 2 State-of-the-art**
It is essential that this should be a critical review of relevant field(s) in which the literature is analysed and synthesised, in which you express your own opinion of the conclusions that may be drawn and do your best to reconcile disparate results in a cogent and meaningful way. Provide a summary at the end of the sections or of the whole review. Remember that the content of this chapter must be relevant to the actual research carried out; it is not a “brain dump” of everything you have read. You must demonstrate analysis, synthesis and integration of the literature.

**Chapter 3 Design / Methodology**
The general structure of the study should be described clearly. The comparisons that are going to be made, the controls and technical details etc. should be included as appropriate. Where software has been developed, this chapter might report on the design of the system. Essentially this chapter is your vehicle in which to clearly articulate the theory underpinning your proposed work, and the structured, coherent design that underpins your research platform. The rationale for each decision you take should be clearly evident from this chapter.

**Chapter 4 Implementation / Results**
Depending on the nature of the project, this chapter will describe the actual work carried out e.g. any experiments undertaken or system implementation. Particular attention must be paid to the implementation and evolution of your research platform, and the steps you undertook to ensure the technical accuracy and validity of the platform and its outputs.

**Chapter 5 Evaluation / Analysis**
In this chapter discuss your results in the light of existing knowledge and state-of-the-art, and show how they confirm or refute previous work. Clearly articulate what you think is new and/or constitutes a meritorious contribution in your work. Do not use this section for another review of the literature.
Chapter 6 Conclusions and Future Work

This should be a short account of the results of your work, emphasising your findings and (new) contributions. There should be a close correlation between this chapter and chapter 1, in which you described the problem you were addressing. It is advisable to deal with the limitations of your research at this stage and to identify what further work might be done. This is the appropriate place to do a self-assessment of your research.

Bibliography

References should be consistently cited in the text. The references in the bibliography at the back of the dissertation should be listed in the same way as they are cited in the text. They should also be complete so that the reader wanting to locate a particular reference has all the information necessary to do so (including page numbers!). Use a “standard” bibliographic format e.g IEEE or ACM. Make sure all references are complete, and not inappropriately abridged.

It is increasingly common to cite references to the World Wide Web. For Web references please give the URL and a date on which the site was accessed. Where an article has been published on the Web and in print, use the print reference.

Appendices

These should contain supplementary material which is not necessary in order for the reader to follow the argument. For example, the text of a questionnaire, detailed UML diagrams, or a complete Software Requirement Specification may be placed in an Appendix. Please include code and project source materials as well as a .pdf copy of your final dissertation document with each hardcopy of your submitted dissertation. You should do so by inserting a disc or CD in a pocket at the back of each copy of the printed dissertation.
Appendix 6: Dissertation Project Proposal Form

Please describe the research topic on which you propose to work under the following headings:

Student Name:

Plagiarism Declarations:

Your own expertise and how well you are positioned to carry out the work described herein:

Project Title:

Project summary:

**Project research goals and targeted outputs:** (include the deeper questions underpinning your research and highlight the specific focus of your work):

**Potential benefits of your planned work for the field:** (what do you expect the benefits of your work will be for other practitioners, enterprise and/or the community?)

**Prior work** (if your project is to be a continuation of a previous project, summarise the results of that project and say how your work will build on those results):

**Connections to funded/collaborative projects** (will your project be connected to ongoing research, e.g., commissioned by a funding body? If so please outline the larger study, those involved in the work and your expected contributed).

**Background** (Identify initial sources for background literature in terms of specific books and papers, and journals/conferences/web sites likely to contain material):

**Proposed methodology/implementation approach:**

**Evaluation criteria** (How will the results of your work be evaluated?):

**Publication plan** (what journals/conferences should be targeted or what organisations should be informed of your work?):

**Work plan** (including work deliverables and dates for identified project stages):
Appendix 7: Sample Examiner’s Report Forms for MSc dissertations

Sample Supervisor’s Report
M.Sc. in Computer Science
(Mobile & Ubiquitous Computing)

Supervisor’s Report on an M.Sc. Dissertation

Project title:
Student name:  
Student number:
Supervisor:  
2nd Reader:

1.0 Project Execution

(a) What were the scope and aims of the project?

(b) What are the main achievements/results/conclusions of the project?  
Comment on the extent to which any results and conclusions have been objectively evaluated.

(c) What, if any, were the creative/innovative aspects of the project?

(d) What were the major technical difficulties encountered?  
Comment on the appropriateness of the solutions, if any, offered.

(e) Mention any unforeseen difficulties beyond the student’s control that hindered the student in any way (e.g., equipment unavailable, etc…).

2.0 Dissertation

(a) Does the dissertation accurately describe the achievements and execution of the project?

(b) Does the dissertation:
   • motivate the goals of the project and explain the context for the work?
   • state the achievements of the project and any specific results or conclusions reached?
   • describe both the state of the art in the area of the project and relevant related work?
   • describe the execution of the project clearly (i.e., any design and/or implementation work carried out)?
   • describe the evaluation of the project results?

(c) Is the dissertation suitable for publication 'as is' in an SCSS Technical Report?
Is the work immediately suitable for publication in a conference or journal? If so, suggest which.

(d) Assess the clarity and readability of the dissertation. Comment on the structure and organisation of the report, the relevance of sections, the clarity of expression, the use of diagrams/tables/graphs, etc.

(e) Are all sources used properly acknowledged (e.g., by citation)? Comment on the quality of references used.

(f) Note any points that emerged from the demonstration that were not adequately covered in the dissertation.

Signed: ____________________
Sample 2\textsuperscript{nd} Reader’s Report

M.Sc. in Computer Science
(Mobile and Ubiquitous Computing)

2\textsuperscript{nd} Readers Report on an M.Sc. Dissertation

Project title: 

Student name: Student number: 

Supervisor: 2\textsuperscript{nd} Reader: 

\section*{1.0 Project Execution}

(a) What were the scope and aims of the project?

(b) What are the main achievements/results/conclusions of the project? 
Comment on the extent to which any results and conclusions have been objectively evaluated.

(c) What, if any, were the creative/innovative aspects of the project?

(d) What were the major technical difficulties encountered? 
Comment on the appropriateness of the solutions, if any, offered.

\section*{2.0 Dissertation}

(a) Does the dissertation accurately describe the achievements and execution of the project?

(b) Does the dissertation:

\begin{itemize}
  \item motivate the goals of the project and explain the context for the work?
  \item state the achievements of the project and any specific results or conclusions reached?
  \item describe both the state of the art in the area of the project and relevant related work?
  \item describe the execution of the project clearly (i.e., any design and/or implementation work carried out)?
  \item describe the evaluation of the project results?
\end{itemize}

(c) Is the dissertation suitable for publication 'as is' in an SCSS Technical Report?  
Is the work immediately suitable for publication in a conference or journal? If so, suggest which.

(d) Assess the clarity and readability of the dissertation.  
Comment on the structure and organisation of the report, the relevance of sections, the clarity of expression, the use of diagrams/tables/graphs, etc.
(e) Are all sources used properly acknowledged (e.g., by citation)?
Comment on the quality of references used.

(f) Note any points that emerged from the demonstration that were not adequately covered in the dissertation.

Signed: ____________________________
Appendix 8: Submission of MSc Dissertation

Process to follow when submitting your dissertation

The dissertation submission process is as follows:

Step 1: Print off (at least) two copies of your dissertation and send them to the binder.

Step 2: Print off two copies of the single A4 page abstract of your dissertation which should include your name, full title of degree, dissertation title, supervisor’s name, year, text of abstract. Print off and sign your plagiarism declaration.

Step 3: Submit an electronic version of your dissertation.

For this, you will need the password of your computer account on School of Computer Science and Statistics (SCSS) machines, which is not necessarily the same password you use for college computer services provided by IS Services. To check if you know your SCSS password, try to access https://www.scss.tcd.ie/Local. If you cannot access this webpage, you will need to send an email to help@scss.tcd.ie from your TCD email account to request a new SCSS password.

When you know your SCSS password, upload your dissertation and abstract as separate PDF files by clicking on the link "Upload Dissertation" on the webpage https://www.scss.tcd.ie/publications/theses/diss/

- Upload your dissertation as a single PDF file.
- Upload the abstract of your dissertation as a single A4 page in PDF format. The Abstract page should include
  1. Your name
  2. Full title of your degree
  3. Title of your dissertation
  4. Name of your supervisor
  5. Year
  6. Text of abstract of your dissertation

When you have successfully submitted your dissertation and abstract pdf’s, an email receipt will be sent to you and the course administrator.

If you have any difficulties using this dissertation submission service please send an email to help@scss.tcd.ie for the attention of Máire Jones, with subject “Dissertation Submission”.

Step 4: If you borrowed equipment, you need to return this equipment to the person you borrowed it from e.g. the technicians or the teaching assistant.

Step 5: You collect your bound dissertations from the binder.

Step 6: You sign the declarations in two copies of your dissertation.

Step 7: You hand the two signed copies of your dissertation, your signed plagiarism declaration and the copy of your abstract to Front Office *personally* in the O’Reilly Institute, before 3.00pm on Thursday 31st August 2017 (please don’t all arrive at once!)
• if you have successfully completed the previous steps (especially step 4) Sarah (or a designate) will accept your dissertation.
• if you fail to complete any of the documented steps your dissertation will not be accepted.
• it is solely your responsibility to ensure that you complete all preceding steps prior to the documented deadline

Additional notes:
• please use the form of words provided here, and as may be updated at https://www.scss.tcd.ie/postgraduate/mobile-ubiquitous-computing/local/dissertations/dissertation_guidelines.php for the title page and declarations in your dissertation.
• binding takes time.
• in previous years, M.Sc. classes have negotiated a bulk deal with a binder saving money and time (by arranging to deliver and collect the dissertations to/from the binder together and having them bound in a shorter period of time).
• do not leave your dissertation in Sarah’s mail box (or her delegate’s) or with anyone else as various checks are necessary before the dissertation can be accepted.

And the bottom line:
The deadline is absolute. If you miss the deadline you will not be eligible for the award of an M.Sc.
Appendix 9: Regulations for candidates on submission of an MSc dissertation

This document summarises the College's regulations and guidelines concerning the submission of dissertations and outlines some requirements that are specific to the M.Sc. in Computer Science. Candidates should also consult the College's regulations independently.

1. Methods of production
   Use a computer/word processor and print your manuscript using a laser or inkjet printer. Colour may be used in photographs, figures, graphs, etc.

2. Typescript and illustrations
   The dissertation must be printed on good quality, white A4 paper. The type must be black and not less than 10 point. Use one and a half or double spacing between lines and print on one side of the page only. The margin on the left-hand side of the page should be at least 3.5 cm to allow for binding.

3. Pagination
   Pages should be numbered consecutively through the dissertation starting with the first page following the table of contents and including appendices but excluding photographs and/or diagrams which are not embodied in the text. The page numbers should be located centrally at the bottom of the page.

4. Length
   The dissertation should be approximately 30,000 words (i.e., no more than 100 pages in total including all appendices assuming 12 point text with one and a half spacing).

5. Cover
   The dissertation must be bound in hard covers with dark blue cloth.

6. Title
   The title must appear in gold lettering on the front cover of the dissertation. The degree for which the dissertation has been submitted (M.Sc. in Computer Science), the year, and the name of the candidate, in that order, should be lettered in gold, in 24pt or larger type, down the spine, so as to be readable when the volume is lying flat with the front cover uppermost.

7. Title page
   Include a title page giving the following information in the order listed:
   - the full title of the dissertation (as on the front cover) and the subtitle if any (ensure that the title describes the content of the dissertation accurately and concisely),
   - the full name of the author,
   - the qualification for which the dissertation is submitted (i.e., M.Sc. in Computer Science),
   - the name of the institution to which the dissertation is submitted (i.e., University of Dublin),
   - the year of submission (e.g., 1999)
   An example title page is included as an appendix to this document.
8. Declaration
The dissertation must contain immediately after the title page:
- a declaration that it has not been submitted as an exercise for a degree at this or any other University,
- a declaration that it is entirely the candidate's own work (in the case of a dissertation for which the work has been carried out jointly, there must be a statement that it includes the unpublished and/or published work of others, duly acknowledged in the text wherever included) and
- a signed statement that the candidate agrees that the Library may lend or copy the dissertation upon request. Example declarations are included as an appendix to this document.

9. Acknowledgements
Any acknowledgments should be on the page following the declaration.

10. Summary
A summary of the dissertation, outlining methods used and major findings should be approximately three hundred words and should follow the declarations and acknowledgments.

11. Table of contents
A table of contents should immediately follow the acknowledgements. It should list in sequence, with page numbers, all relevant subdivisions of the dissertation, including the list of abbreviations, titles of chapters and their sections and subsections; the list of references; the bibliography etc.

12. Tables and illustrative material
Lists of tables and illustrations should follow the table of contents. All tables, photographs, diagrams etc., in the order in which they occur in the text, should be so listed.

13. Abbreviations
Where abbreviations are used a key should be provided on a separate page.

14. References
Systematic and complete reference to sources used and a classified list of all sources used must be included in the dissertation. The titles of journals preferably should not be abbreviated; if they are, abbreviations must comply with an internationally recognised system.

Ensure that citations and the corresponding references are formatted consistently.

Avoid citations to electronic sources (e.g. WWW pages). A citation to a web page should be used only where there is no alternative and where it can be guaranteed that the page in question will continue to be accessible in the future.

15. Submission
Two hardbound copies of the dissertation must be submitted (personally) to Front Office, O’Reilly Institute. You will probably want an additional copy for yourself and may also want to give a copy to your supervisor.

One copy of an abstract, printed on a single sheet of A4 paper, must be submitted loose with each copy of the dissertation. The abstract must contain the title of the dissertation and the author's full name as a heading and may be single-spaced.


Please check the TCD Graduate Studies Website as the regulations summarised above may be superseded by any newer releases of these guidelines. Further guidance on formatting and layout can be found by reference to the RESEARCH dissertation guidelines here: https://www.tcd.ie/itservices/assets/samples/Planning_Thesis/Thesis%20Submission%20Guidelines%20AUGUST11.pdf
APPENDIX 10: Templates

This appendix contains examples of title and declaration pages. Text within angle brackets should be replaced appropriately.
<Title of the dissertation>

<Your name in full>

A dissertation submitted to the University of Dublin, in partial fulfilment of the requirements for the degree of Master of Science in Computer Science

<Year of submission>
Declaration

I declare that the work described in this dissertation is, except where otherwise stated, entirely my own work and has not been submitted as an exercise for a degree at this or any other university.

Signed: _______________________
<Your name in full>
<Date>
Permission to lend and/or copy

I agree that Trinity College Library may lend or copy this dissertation upon request.

Signed: ____________________
<Your name in full>
<Date>
School of Computer Science and Statistics

Assessment Submission Form

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I have read and I understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: [http://www.tcd.ie/calendar](http://www.tcd.ie/calendar)
I have also completed the Online Tutorial on avoiding plagiarism ‘Ready, Steady, Write’, located at [http://tcd-ie.libguides.com/plagiarism/ready-steady-write](http://tcd-ie.libguides.com/plagiarism/ready-steady-write)
I declare that the assignment being submitted represents my own work and has not been taken from the work of others save where appropriately referenced in the body of the assignment.

Signed ………………………………………………….. Date …………………………………………………..
Author Declaration for Group Assignments

Assignment Number: _______
Module Number: _______
Title of Assignment:

Word Count: _______

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We have read and we understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: http://www.tcd.ie/calendar

We have also completed the Online Tutorial on avoiding plagiarism ‘Ready, Steady, Write’, located at http://tcd-ie.libguides.com/plagiarism/ready-steady-write

We declare that this assignment, together with any supporting artefact is offered for assessment as our original and unaided work, except in so far as any advice and/or assistance from any other named person in preparing it and any reference material used are duly and appropriately acknowledged.

We declare that the percentage contribution by each member as stated above has been agreed by all members of the group, and reflects the actual contribution of the group members.

Signed and dated:

_________________________  _______________________

_________________________  _______________________

_________________________  _______________________
Appendix 11: Plagiarism

82 General

It is clearly understood that all members of the academic community use and build on the work and ideas of others. It is commonly accepted also, however, that we build on the work and ideas of others in an open and explicit manner, and with due acknowledgement. Plagiarism is the act of presenting the work or ideas of others as one’s own, without due acknowledgement. Plagiarism can arise from deliberate actions and also through careless thinking and/or methodology. The offence lies not in the attitude or intention of the perpetrator, but in the action and in its consequences. It is the responsibility of the author of any work to ensure that he/she does not commit plagiarism. Plagiarism is considered to be academically fraudulent, and an offence against academic integrity that is subject to the disciplinary procedures of the University.

83 Examples of Plagiarism

Plagiarism can arise from actions such as:

(a) copying another student’s work;
(b) enlisting another person or persons to complete an assignment on the student’s behalf;
(c) procuring, whether with payment or otherwise, the work or ideas of another;
(d) quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format, including websites and social media;
(e) paraphrasing, without acknowledgement, the writings of other authors.

Examples (d) and (e) in particular can arise through careless thinking and/or methodology where students:

(i) fail to distinguish between their own ideas and those of others;
(ii) fail to take proper notes during preliminary research and therefore lose track of the sources from which the notes were drawn;
(iii) fail to distinguish between information which needs no acknowledgement because it is firmly in the public domain, and information which might be widely known, but which nevertheless requires some sort of acknowledgement;
(iv) come across a distinctive methodology or idea and fail to record its source.

All the above serve only as examples and are not exhaustive.

84 Plagiarism in the context of group work

Students should normally submit work done in cooperation with other students only when it is done with the full knowledge and permission of the lecturer concerned. Without this, submitting work which is the product of collusion with other students may be considered to be plagiarism. When work is submitted as the result of a group project, it is the responsibility of all students in the group to ensure, so far as is possible, that no work submitted by the group is plagiarised.

85 Self plagiarism

No work can normally be submitted for more than one assessment for credit. Resubmitting the same work for more than one assessment for credit is normally considered self-plagiarism.

86 Avoiding plagiarism

Students should ensure the integrity of their work by seeking advice from their lecturers, tutor or supervisor on avoiding plagiarism. All schools and departments must include, in their handbooks or other literature given to students, guidelines on the appropriate methodology for the kind of work that students will be expected to undertake. In addition, a general set of guidelines for students on avoiding plagiarism is available on http://tcd-ie.libguides.com/plagiarism.
87 If plagiarism as referred to in §82 above is suspected, in the first instance, the Director of Teaching and Learning (Undergraduate), or their designate, will write to the student, and the student’s tutor advising them of the concerns raised. The student and tutor (as an alternative to the tutor, students may nominate a representative from the Students’ Union) will be invited to attend an informal meeting with the Director of Teaching and Learning (Undergraduate), or their designate, and the lecturer concerned, in order to put their suspicions to the student and give the student the opportunity to respond. The student will be requested to respond in writing stating his/her agreement to attend such a meeting and confirming on which of the suggested dates and times it will be possible for them to attend. If the student does not in this manner agree to attend such a meeting, the Director of Teaching and Learning (Undergraduate), or designate, may refer the case directly to the Junior Dean, who will interview the student and may implement the procedures as referred to under CONDUCT AND COLLEGE REGULATIONS §2.

88 If the Director of Teaching and Learning (Undergraduate), or designate, forms the view that plagiarism has taken place, he/she must decide if the offence can be dealt with under the summary procedure set out below. In order for this summary procedure to be followed, all parties attending the informal meeting as noted in §87 above must state their agreement in writing to the Director of Teaching and Learning (Undergraduate), or designate. If the facts of the case are in dispute, or if the Director of Teaching and Learning (Undergraduate), or designate, feels that the penalties provided for under the summary procedure below are inappropriate given the circumstances of the case, he/she will refer the case directly to the Junior Dean, who will interview the student and may implement the procedures as referred to under CONDUCT AND COLLEGE REGULATIONS §2.

89 If the offence can be dealt with under the summary procedure, the Director of Teaching and Learning (Undergraduate), or designate, will recommend one of the following penalties:

(a) Level 1: Student receives an informal verbal warning. The piece of work in question is inadmissible. The student is required to rephrase and correctly reference all plagiarised elements. Other content should not be altered. The resubmitted work will be assessed and marked without penalty;

(b) Level 2: Student receives a formal written warning. The piece of work in question is inadmissible. The student is required to rephrase and correctly reference all plagiarised elements. Other content should not be altered. The resubmitted work will receive a reduced or capped mark depending on the seriousness/extent of plagiarism;

(c) Level 3: Student receives a formal written warning. The piece of work in question is inadmissible. There is no opportunity for resubmission.

90 Provided that the appropriate procedure has been followed and all parties in §87 above are in agreement with the proposed penalty, the Director of Teaching and Learning (Undergraduate) should in the case of a Level 1 offence, inform the course director and where appropriate the course office. In the case of a Level 2 or Level 3 offence, the Senior Lecturer must be notified and requested to approve the recommended penalty. The Senior Lecturer will inform the Junior Dean accordingly. The Junior Dean may nevertheless implement the procedures as referred to under CONDUCT AND COLLEGE REGULATIONS §2.

91 If the case cannot normally be dealt with under the summary procedures, it is deemed to be a Level 4 offence and will be referred directly to the Junior Dean. Nothing provided for under the summary procedure diminishes or prejudices the disciplinary powers of the Junior Dean under the 2010 Consolidated Statutes.
Disclaimer:

The information contained in this document is intended to provide a guide to those seeking admission to the programme, and to the students on the course. Trinity College Dublin reserves the right to update or change syllabi, timetables, or other aspects of the programme at any time. Where appropriate, changes will be notified to current students by email.