School of Computer Science

Important Degree Information:

B.Sc./M.A. Honours
The general requirements are 480 credits over a period of normally 4 years (and not more than 5 years) or part-time equivalent; the final two years being an approved Honours programme of 240 credits, of which 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a B.Sc. or M.A. degree.

B.Sc./M.A. Honours with Integrated Year Abroad
The general requirements are 540 credits over a period of normally 5 years (and not more than 6 years) or part-time equivalent; the final three years being an approved Honours programme of 300 credits, of which 60 credits are gained during the integrated year abroad, 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a B.Sc. or M.A. degree.

M.Sci. Honours
The general requirements are 600 credits over a period of normally 5 years (and not more than 6 years) or part-time equivalent; the final three years being an approved Honours programme of 360 credits at 3000 level or above, of which 90 credits are at 4000 level and at least 20 credits at 5000 level.

Other Information: In the case of students who spend part of the Honours programme abroad on a recognised Exchange Scheme, the Programme Requirements will be amended to take into account courses taken while abroad. From 2009/10, the School will to participate in ID4001 (Communication and Teaching in Science). This may be taken by Single Honours Computer Science/Internet Computer Science students as an alternative to 3000- and/or 4000-level option credits, as shown below.

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Computer Science**	**Single Honours Computer Science (B.Sc. Honours):** **Level 1:** At least 40 credits consisting of CS1002 and CS1004 **Level 2:** 60 credits consisting of passes at grade 11 in both CS2001 and CS2002 **Level 3:** 120 credits consisting of: - 60 credits from CS3051 - CS3099 - 60 credits from CS3101 - CS3399 **Level 4:** 120 credits consisting of: - 45 credits from CS4052 - CS4099 - at most 30 credits from CS5101 - CS5199 - at most 30 credits from CS3101 - CS3399, ID4001 - remaining credits from CS4101 - CS4999

Degree Programmes	**Programme Requirements at:**
(M.Sci. Honours): **Computer Science**	**Single Honours Computer Science (B.Sc. Honours):** **Level 1:** 40 credits consisting of CS1002 and CS1004 **Level 2:** 60 credits consisting of passes at grade 15 or higher in both (CS2001 or CS2101) and CS2002 **Level 3:** 120 credits consisting of: - 60 credits from CS3050 - CS3099 - 60 credits from CS3100 - CS3399 **Level 4:** 90 credits consisting of: - 45 credits from CS4052 - CS4099 - 45 credits from CS4100 - CS4999 **Level 5:** 120 credits consisting of: - 60 credits from CS5190 - CS5199 - a further 60 credits from CS5010 - CS5900 (KM note: confirm end of range is intentional - will include new Erasmus Mundus Dissertation CS5899, also includes CS5011, CS5021 (core to PG programmes) KM/Registry note: A further 30 credits at 3000 or 4000 level needed to complete the requirement - please indicate where?
(B.Sc. Honours): **Computer Science and one of Economics, Logic & Philosophy of Science, Management, Management Science, Mathematics, Physics or Statistics**	**Computer Science element of Joint Honours Degree (B.Sc.):** **Level 1:** 40 credits consisting of CS1002 and CS1004 **Level 2:** 60 credits consisting of passes at grade 11 in both CS2001 and CS2002 **Level 3:** 60 credits consisting of CS3051, CS3052, CS3099 and 15 further credits from CS3053 and CS3100 - CS3999. **Level 4:** 60 credits, consisting of: - 30 credits from CS4052 - CS4098 - at most 30 credits from CS5101 - CS5199 - at most 15 credits from CS3101 - CS3399, ID4001 - remaining credits from CS4101 - CS4999
Degree Programmes	**Programme Requirements at:**

(B.Sc. Honours): **Computer Science and Psychology**	**Computer Science element of Joint Honours Degree (B.Sc.):** **Level 1:** 40 credits consisting of CS1002 and CS1004 **Level 2:** 60 credits consisting of passes at grade 11 in both CS2001 and CS2002 **Level 3:** 45 credits from CS3001 - CS3399, including at least one of CS3051 and CS3099. **Level 4:** 45 credits, consisting of: - CS4098 - at most 30 credits from CS5101 - CS5199 - remaining credits from CS4051 - CS4999 Note: The total Honours credits in Computer Science and in Psychology must be at least 240, of which at least 90 must be at 4000 level.
(B.Sc. Honours): **Computer Science with French[W N]** [W] Available also as 'With Integrated Year Abroad Degrees' **[N] This programme is only available to those already enrolled in it.**	**Computer Science major element of B.Sc. Degree with Modern Languages:** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2002, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 90 credits, consisting of: - 30 credits from CS3001 - CS3099 - 30 or 45 credits from CS3101 - CS3199 - remaining credits from CS3201 - CS3299 **Level 4:** Normally in the Senior Honours year, 90 credits, consisting of: - 15 (or more) credits from CS4076 - CS4099 - 45 (or more) credits from CS4101 - CS4199 and CS4201 - CS4299, including 15 (or more) credits from CS4201 - CS4299 - remaining credits from CS3001 - CS4999

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Internet Computer Science**	**Single Honours Internet Computer Science B.Sc. Degree:** **Level 1:** 40 credits consisting of CS1002 and CS1004 **Level 2:** 90 credits consisting of passes at grade 11 in CS2001, CS2002 and CS2003 **Level 3:** 120 credits consisting of: - 60 credits from CS3051 - CS3099 - 45 credits from CS3102, CS3301 and CS3302 - 15 other credits from CS3101 - CS3399 **Level 4:** 120 credits consisting of: - 45 credits from CS4052 - CS4099 - 45 credits from CS4103, CS4203 and CS4302 - at most 30 credits from CS5101 - CS5199 - at most 30 credits from CS3101 - CS3399, ID4001 - remaining credits from CS4101 - CS4999
(B.Sc. Honours): **Internet Computer Science and one of** **Economics [N], or** **Mathematics [N]** **[N] These programmes are only available to those already enrolled on them.**	**Internet Computer Science element of Joint Honours B.Sc. Degrees:** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2003, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 60 credits, consisting of: - 15 credits from CS3099 - 45 credits from CS3051, CS3101 - CS3199 and CS3301 - CS3399, including 15 (or more) credits from CS3301 - CS3399 **Level 4:** Normally in the Senior Honours year, 60 credits, consisting of: - 15 (or more) credits from CS4076 - CS4099 - 30 (or more) credits from CS4101 - CS4199, CS4301 - CS4399, including 15 (or more) credits from CS4301 - CS4399 - remaining credits from CS3001 - CS4999

Students still completing degree programmes as defined in previous Course Catalogues should discuss their module selections with their Honours Adviser(s).

Modules

InterDisciplinary (ID) Modules

This School contributes to InterDisciplinary modules – **ID1003 Great Ideas 1** and **ID2003 Science Methods** (see Section 23).

Computer Science (CS) Modules

CS1002 Computer Science

Credits: 20 Semester: 1

Prerequisites: Mathematics (Higher or A-Level at Grade B or better)

Description: This module covers problem-solving skills, object-oriented modelling and programming. Programming exercises include object-oriented modelling, computer graphics and data structures.

Class Hour: 10.00 am

Teaching: 4 lectures, 1 tutorial and 1 x 2.5-hour laboratory.

Assessment: Continuous Assessment = 40%, 2-hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 2-hour Examination = 60%

CS1004 Internet Programming

Credits: 20 Semester: 2

Prerequisite: CS1002

Description: This module provides an introduction to concepts in networked computing: client-server architectures, addressing, protocols and networking technologies. It will provide an introduction to protocols with emphasis on the Internet Protocols including TCP, IP, HTTP and SMTP and the use of Java for programming networked applications. Data and meta data formats including HTML, XML, MIME etc. will be discussed. Authoring of Web pages including the use of Java Applets will be explored.

Class Hour: 10.00 am

Teaching: 4 lectures, 1 tutorial and 1 x 2.5-hour laboratory.

Assessment: Continuous Assessment = 40%, 2-hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 2-hour Examination = 60%

CS1005 Computer Science in Everyday Life

Credits: 20 Semester: 1

Description: This module will introduce key ideas of Computer Science through examination of the working of devices and services which are part of modern everyday life, such as search engines, personal music players, mobile telephones and social networking sites. Students will be led to develop an understanding of some fundamentals of Computer Science, as well as gain transferable skills in critical reading, research in the technical literature and essay writing.

Class Hour: 12.00 noon

Teaching: 2 or 3 lectures and 1 tutorial.

Assessment: Continuous Assessment = 40%, 2-hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 2-hour Examination = 60%

CS1006 Programming Projects

Credits: 20 Semester: 2

Prerequisite: CS1002

Description: This module reinforces key Java programming skills gained in CS1002, by means of a series of coursework assignments posed as mini-projects. These are designed to offer increasing depth and scope for creativity as the module progresses.

Class Hour: 11.00 am

Teaching: 1 lecture, 1 tutorial and 1 x 2.5-hour practical class.

Assessment: Continuous Assessment = 100%

Re-Assessment: No reassessment available

CS2001 Foundations of Computation

Credits: 30 Semester: 1

Prerequisite: CS1002, CS1004 and one or more of CS1010, MT1001, MT1002, Mathematics at grade C or better in either A-level or Advanced Higher, Mathematics at grade B or better in either AS-level or Higher.

Description: This module introduces the fundamental algorithms, data structures and ideas about formal languages which are at the heart of modern software, and develops skills in programming and analysis.

Class Hour: 9.00 am

Teaching: 4 lectures, 1 tutorial and a practical.

Assessment: Continuous Assessment = 40%, 2 x 1.5-hour Examinations = 60%

Re-Assessment: Continuous Assessment = 40%, 2 x 1.5-hour Examinations = 60%

CS2002 Advanced Computer Science

Credits: 30 Semester: 2

Prerequisite: CS2001

Description: This module develops expertise and skills in programming in C, systems programming, digital logic and low-level computer organization.

Class Hour: 9.00 am

Teaching: 4 lectures, 1 tutorial and a practical.

Assessment: Continuous Assessment = 40%, 2 x 1.5-hour Examinations = 60%

Re-Assessment: Continuous Assessment = 40%, 2 x 1.5-hour Examinations = 60%

CS2003 Advanced Internet Programming

Credits: 30 Semester: 2

Prerequisite: CS2001

Description: This module explores the concepts and abstractions for Internet programming. Students are introduced to distributed computing models, server-side and client-side computing. Issues in building distributed Internet applications are practically illustrated through programming in Java and JavaScript.

Class Hour: 11.00 am

Teaching: 4 lectures, 1 tutorial and a practical.

Assessment: Continuous Assessment = 40%, 2 x 1.5-hour Examinations = 60%

Re-Assessment: Continuous Assessment = 40%, 2 x 1.5-hour Examinations = 60%

CS2006 Advanced Programming Projects

Credits: 30 Semester: 1

Prerequisite: CS1002, and the same mathematics prerequisites as CS2001, , i.e. one or more of CS1010, MT1002, MT1002, Mathematics at grade C or better in either A-level or Advanced Higher, Mathematics at grade B or better in either AS-level or Higher.

Description: This module introduces two new programming paradigms: functional programming in a strongly typed language, such as Haskell, and the use of a dynamic programming language, such as Python. Coverage of the fundamentals of the two paradigms will be followed by extensive practical exercises.

Class Hour: 11.00 am

Teaching: 4 lectures, 1 tutorial and 2 practical classes.

Assessment: Continuous Assessment = 100%

Re-Assessment: No reassessment available

Information Technology (IS) Modules

IS1101 Information & Communication Technologies

Credits: 10 Semester: 2

Anti-requisite: IS1001, IS1901

Description: This module is an intensive practically oriented introduction to Information Technology, covering aspects from a range of topics including The Internet, World Wide Web Basics, Word Processing, Graphics and Presentation Software.

Class Hour: 12.00 noon Monday and Tuesday

Teaching: 2 lectures and 1 x 2.5-hour laboratory.

Assessment: Continuous Assessment = 100%

Re-Assessment: no reassessment available

IS1102 Computers & Society

Credits: 10 Semester: 2

Anti-requisite: IS1001, IS1901

Description: This module considers the use of computer systems from a technical, legal and ethical perspective, providing a grounding in the professional and social aspects of using Computers and Information Technologies.

Class Hour: 12.00 noon Wednesday, Thursday and Friday

Teaching: 2 lectures and 1 tutorial.

Assessment: Continuous Assessment = 40%, 1-hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, One Hour Examination = 60%

The details of the Honours modules – that is 3000-level and 4000-level modules – which relate to the programmes listed in this section are available in the Honours Course Catalogue.