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 BSc or MA degree.

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.

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, 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, 120 credits, consisting of: - 30 credits from CS3001–CS3099 - 60 credits from CS3101–CS3199 - 30 credits from CS3201–CS3299 **Level 4:** Normally in the Senior Honours year, 120 credits, consisting of: - 45 credits from CS4001–CS4099 - 45 (or more) credits from CS4101–CS4199 and CS4201–CS4299, including 30 (or more) credits from CS4201–CS4299 - remaining credits from CS3001–CS4999

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Computer Science and one of Chemistry, Economics, Logic & Philosophy of Science, Management, Management Science, Mathematics, Physics and Statistics** **Computer Science and Geoscience** (not available to students who enter the University after 2002)	**Computer Science element of Joint Degree (B.Sc. Honours):** **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, 60 credits, consisting of: - 15 credits from CS3099 - 45 credits from CS3051, CS3101–CS3199 and CS3201–CS3299, including 15 (or more) credits from CS3201–CS3299 **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, CS4201–CS4299, including 15 (or more) credits from CS4201–CS4299 - remaining credits from CS3001–CS4999
(B.Sc. Honours): **Computer Science and Psychology**	**Computer Science element of Joint Degree (B.Sc. Honours):** **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, 45 credits, consisting of: - 15 credits from CS3051 – CS3099 - 30 credits from CS3101 – CS3299 **Level 4:** Normally in the Senior Honours year, 45 credits, consisting of: - 15 credits from CS4076–CS4099 - 30 credits from CS4051 and CS4101–CS4499 Note: The total Honours credits in Computer Science and in Psychology must equal or exceed 240.
(B.Sc. Honours): **Computer Science with one of French^, German^, Linguistics, Russian^ and Spanish^** ^ - available also as 'With Integrated Year Abroad Degree'	**Computer Science element of Major 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:**
(M.A. Honours): **Integrated Information Technology and one of Ancient History, Art History, Biblical Studies, Classical Studies, Classics, Film Studies, Greek, Latin, Management and Theological Studies.** These programmes are not available from 2006/07 except to students specifically admitted to such a programme.	**Integrated Information Technology element of Joint Honours M.A. Degree:** **Level 1:** None (in this subject) **Level 2:** None (in this subject) **Level 3:** 120 credits, consisting of IS3001 and IS3002 **Level 4:** None (in this subject)
(B.Sc. Honours): **Internet Computer Science**	**Single Honours Internet Computer Science B.Sc. Degree:** **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, 120 credits, consisting of: - 30 credits from CS3001–CS3099 - 60 credits from CS3101–CS3199 - 30 credits from CS3301–CS3399 **Level 4:** Normally in the Senior Honours year, 120 credits, consisting of: - 45 credits from CS4001–CS4099 - 45 (or more) credits from CS4101–CS4199 and CS4301–CS4399, including 30 (or more) credits from CS4301–CS4399 - remaining credits from CS3001–CS4999
(B.Sc. Honours): **Internet Computer Science and one of Chemistry, Economics, Logic & Philosophy of Science, Management, Management Science, Mathematics, Physics and Statistics**	**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

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Internet Computer Science with one of French^, German^, Linguistics, Russian^ and Spanish^** ^ also available as 'With Integrated Year Abroad Degree'	**Internet Computer Science element of Major Degree (B.Sc. Honours)** **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, 90 credits, consisting of: - 30 credits from CS3001–CS3099 - 30 or 45 credits from CS3101–CS3199 - remaining credits from CS3301–CS3399 **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 CS4301–CS4399, including 15 (or more) credits from CS4301–CS4399 - remaining credits from CS3001–CS4999

Modules

Interdisciplinary (ID) Modules

This School contributes to an inter-disciplinary module – **ID2003 Science Methods** (see Section 23).

Computer Science (CS) Modules

CS1002 Computer Science

Credits: 20.0 Semester: 1

Prerequisites: Mathematics (either GCSE, at grades A* to C, or Standard Grade, at grades 1 to 2)

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: Four lectures, one tutorial and one two-and-a-half hour laboratory.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

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

CS1004 Internet Programming

Credits: 20.0 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: Four lectures, one tutorial and one two-and-a-half hour laboratory.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

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

CS1010 Discrete Mathematics for Computer Science

Credits: 10.0 Semester: 1

Anti-requisites: Advanced Higher or A-level Mathematics at grade B or better; MT1001, MT1002

Co-requisite: CS1002

Description: This module aims to provide students without a strong post-16 mathematics qualification with the mathematical knowledge and skills necessary for the Computer Science and Internet Computer Science degree courses. A key ingredient will be regular practice to develop confidence, speed and accuracy in basic mathematical manipulation. The module covers the following topics: Mathematical notation and language, equations, elementary logic and rigorous arguments; Sets, sequences, and functions; Notations for these; Basic probability; Polynomials and their coefficients, degrees and roots; Graphs of functions; Matrices and matrix arithmetic.

Class Hour: 12.00 noon

Teaching: Two lectures, one tutorial, one examples class

Assessment: Continuous Assessment = 40%, 1 Hour Examination = 60%

Re-Assessment: Continuous Assessment = 40%, 1 Hour Examination = 60%

CS2001 Foundations of Computation

Credits: 30.0 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: Four lectures, one tutorial and a practical.

Assessment: Continuous Assessment = 40%, 2 One-and-a-half Hour Examinations = 60%

Re-Assessment: Continuous Assessment = 40%, 2 One-and-a-half Hour Examinations = 60%

CS2002 Advanced Computer Science

Credits: 30.0 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: Four lectures, one tutorial and a practical.

Assessment: Continuous Assessment = 40%, 2 One-and-a-half Hour Examinations = 60%

Re-Assessment: Continuous Assessment = 40%, 2 One-and-a-half Hour Examinations = 60%

CS2003 Advanced Internet Programming

Credits: 30.0 Semester: 2

Prerequisite: CS2001

Description: This module explores the concepts and abstractions for Internet programming. Students are introduced to server side computing and client side computing. These issues are practically illustrated through programming in Java.

Class Hour: 11.00 am

Teaching: Four lectures, one tutorial and a practical.

Assessment: Continuous Assessment = 40%, 2 One-and-a-half Hour Examinations = 60%

Re-Assessment: Continuous Assessment = 40%, 2 One-and-a-half Hour Examinations = 60%

Information Technology (IS) Modules

IS1001 Information Technology

Credits: 20.0 Semester: 1 & 2 (offered twice)

Description: This module introduces students to the use of computers, providing skills in word processing, spreadsheets, graphics, and using and contributing to the Internet and World Wide Web. Lectures also cover systems and communications and computers and society. No previous computing experience is necessary.

Class Hour: 11.00 am (semester 1) 12.00 noon (semester 2)

Teaching: Four lectures, one tutorial and one two-and-a-half hour laboratory.

Assessment: Practical Work = 33%, Class Tests = 33%, 1 Hour Examination = 34%

Re-Assessment: Practical Work = 33%, Class Tests = 33%, 1 Hour Examination = 34%

IS2102 Dynamic Web Sites

Credits: 20.0 Semester: 2

Prerequisite: IS1001 or Permission of Head of School

Anti-requisite: IS2103

Description: This module aims to extend the range of topics covered in IS1001; it will consequently provide an introduction to more advanced uses of computers in IT with a focus on designing and publishing dynamic web sites, including the design and use of databases. It also aims to introduce some aspects of programming for the World Wide Web and applications.

Class Hour: 1.00 pm

Teaching: Three lectures, one tutorial and one 3 hour practical.

Assessment: Practical Work = 33%, Class Tests = 33%, 1 Hour Examination = 34%

Re-Assessment: Practical Work = 25%, Class Tests = 25%, 1 Hour Examination = 50%

IS2103 Dynamic Web Sites and the Future of Computers

Credits: 30.0 Semester: 2

Prerequisite: IS1001 or Permission of Head of School

Anti-requisite: IS2102

Description: This module aims to extend the range of topics covered in IS1001; it will consequently provide an introduction to more advanced uses of computers in IT with a focus on designing and publishing dynamic web sites, including the design and use of databases. It also aims to introduce some aspects of programming for the World Wide Web and applications and to provide an introduction to the future role of computing in society.

Class Hour: 1.00 pm

Teaching: Four lectures, one tutorial and one 3 hour practical.

Assessment: Practical Work = 33%, Class Tests = 33%, 1 Hour Examination = 34%

Re-Assessment: Practical Work = 25%, Class Tests = 25%, 1 Hour Examination = 50%

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