1. Programme Title(s) and Code(s):

Programme Title	UCAS Code	GU Code
MSci (Combined) in Computing Science (and another subject)		G402-2207H

2. Academic Session:

2016-17

3. SCQF Level (see **Scottish Credit and Qualifications Framework Levels**):

11

4. Credits:

600

5. Entrance Requirements:

Please refer to the current undergraduate prospectus at:
http://www.gla.ac.uk/undergraduate/

6. ATAS Certificate Requirement (see **Academic Technology Approval Scheme**):

ATAS Certificate not required

7. Attendance Type:

Full Time

8. Programme Aims:

This degree programme aims to:
- provide students with an understanding of the theory and practice of computing;
- give students the opportunity to study a range of core computing science topics;
- encourage students to discover the connections among these topics and to understand their common theoretical foundations;

- give students the opportunity to choose selected topics to study in considerable depth thereby equipping the best graduates to enter either an academic or industrial research career;
- emphasise unchanging principles in computing science;
- encourage independent study habits that will stand graduates in good stead throughout their professional careers;
- enable students to enhance their transferable and interpersonal skills, particularly written and oral communication and team working;
- equip students with an advanced and systematic understanding of selected areas of Computing Science;
- provide the skills necessary to pursue independent research.

9. Intended Learning Outcomes of Programme:

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the areas listed below.

By the end of the programme, students will be able to:

Knowledge and Understanding
• demonstrate state-of-the-art knowledge and understanding of a range of topics in Computing Science;
• identify and debate the ethical, professional, and social issues raised by computerized information processing.

Skills and Other Attributes
Subject-specific/practical skills
• plan and execute a challenging and substantial Computing Science research project, to evaluate the work done, and to place that work in the context of other related work;
• summarise and review research papers in a variety of areas of Computing Science.

Intellectual skills
• learn independently;
• critically review the research work of others;
• solve challenging research problems;
• conduct independent research.

Transferable/key skills
• demonstrate highly developed oral and written communication skills.

10. Typical Learning and Teaching Approaches:

In the compulsory courses, teaching and learning are by lectures, reading, and seminars (some of which are student-led). In the elective courses, teaching and learning are by lectures, tutorials, reading, and (where appropriate) computing laboratory work.

In the Research Proposal and Project, teaching and learning are by independent research and dissertation writing, under individual supervision.

11. Typical Assessment Methods:

In the compulsory courses, assessment is by written paper reviews, an annotated bibliography, oral presentations, closed-book and open-book examinations. In the elective courses, assessment is by coursework and closed-book examinations. In the Research Proposal and Project, assessment is by a research paper and through a Research Proposal coursework report.

12. Programme Structure and Features:

Students who have not been admitted to the University on the MSci programme can apply to transfer to the programme at the end of semester 2 in level 4. Entry will be based on their academic performance.

A candidate for the MSci degree must obtain a minimum of 600 credits, 120 of which must be awarded at level M.

Levels 1 & 2 follow the same courses as the BSc Honours programme.

Level 1
There are three sets of courses currently offered at level 1. Either set enables students to continue to Honours level:

Set 1: aimed at students with prior programming experience; 40 credits of CS out of 120.

Set 2: aimed at students with no prior programming experience; 40 credits of CS out of 120. A student who chooses set 2 in Level 1 will need to take Computing Fundamentals (COMPSCI2002) (10 credits) in Level 2.

Set 3: aimed at students with no prior programming experience; 50 credits of CS out of 120.

Students will be strongly encouraged to include 40 credits of Level 1 Mathematics in year 1 or 2.

Course Title	Course Code	Credits	Core	Optional	Semester(s) taught
SET 1 [40 credits]					
Computing Science 1P	COMPSCI1001	20	X		1 & 2
Computing Science 1Q	COMPSCI1002	20	X		1 & 2
Other subjects (Level 1, 80 credits)					
SET 2 [40 credits]					
Computing Science 1CT	COMPSCI1016	20	X		1
Computing Science 1PX	COMPSCI1017	10	X		2
Computing Science 1S	COMPSCI1018	10	X		2
Other subjects (Level 1, 80 credits)					
SET 3 [50 credits]					
Computing Science 1CT	COMPSCI1016	20	X		1
Computing Science 1PX	COMPSCI1017	10	X		2
Computing Science 1Q	COMPSCI1002	20	X		1 & 2
Other subjects (Level 1, 70 credits)					

Level 2
Level 2 entry is guaranteed to students who achieve an average grade of B3 or better in their Level 1 CS courses at first sitting. Entry is not guaranteed to students with an average grade of C3 or better in their Level 1 CS courses at first sitting but may be permitted at the discretion of the School.

In either case, all grades must be at D3 or better – students who have gained a sufficient average grade at first sitting must resit to improve any grade below D3.

Course Title	Course Code	Credits	Core	Optional	Semester(s) taught
Java and Object Oriented Software Engineering 2	COMPSCI2020	20	X		1 & 2
Algorithms & Data Structures 2	COMPSCI2007	10	X		2
Students must also choose at least 10 credits from the following courses					
Algorithmic Foundations 2	COMPSCI2003	10		x	1
Computer Systems 2	COMPSCI2005	10		x	1
Web Application Development 2	COMPSCI2021	10		x	2
Other subjects (Level 1 or 2, 60 to					

80 credits)					

Computing Fundamentals (COMPSCI2002) (Level 2, 10 credits) (semester 1) is required to be taken by any student who has done set 2 in Level 1.

Level 3

Honours students in Science must achieve a grade point average of 12 over 60 credits of Level 2 courses in the subject of their Honours Programme at the first attempt.

Students who do not meet the requirements for entry to our Honours degree programmes may be eligible for entry to the Designated Degree in Computing Science (CS3). Such students must satisfy the progression requirements in Parts 10 and 11 of the Generic Undergraduate Regulations and the requirements of Part 3 of the Supplementary Regulations for the Degree of Bachelor of Science, as set out by the College of Science and Engineering, and must also meet the following additional requirement from the School of Computing Science.

Honours Entry Guaranteed: minimum average grade of B3 (15 on University 22 point scale) over 40 credits of Level 2 Computing Science courses at first attempt. At School discretion: minimum average grade of C3 (12 on University 22 point scale) over 40 credits of Level 2 Computing Science courses at first attempt. In addition, the student must fulfil the requirements for the other subject.

Combined Honours students in Level 3 take the following compulsory courses worth 30 credits:

Course Title	Course Code	Credits	Core	Options	Semester(s) taught
Advanced Programming (H)	COMPSCI4010	10	X		1
Professional Software Development (H)	COMPSCI4015	10	X		1 & 2
Team Project Minor (H)	COMPSCI4070	10	X		1 & 2
Students must also choose a three further courses from:					
Algorithmics I (H)	COMPSCI4009	10		X	1
Interactive Systems (H)	COMPSCI4014	10		X	1
Programming Languages (H)	COMPSCI4016	10		X	1
Database Systems (H)	COMPSCI4013	10		X	2
Networked Systems (H)	COMPSCI4012	10		X	2
Operating Systems (H)	COMPSCI4011	10		X	2
Professional Skills and Issues (H)	COMPSCI4038	10		X	2

BSc Honours (Combined) students need at least 50% of credits in Computing Science to be considered for entry into MSci in Computing Science (Combined).

Level 4

Entry to Level 4 is dependent on the student achieving a GPA of at least 12 in Level 3 at the first attempt and fulfilling the requirements of the other subject for joint/combined Honours.

Combined Honours students in Level 4 choose four 10-credit courses, subject to meeting pre-requisites, from a pool of at least sixteen. The courses on offer change from year to year depending on staff availability and resources. These courses are designed to provide students with depth in a subject area. The list of level H and M courses currently available are listed below:

Advanced Networking and Communications (H), Algorithmics II (H), Artificial Intelligence (H), Big Data: Systems, Programming and Management (H), Computer Architecture (H), Computing Science in the Classroom (H), Computer Vision Methods and Applications (H), Cyber Security Fundamentals (H), Distributed Algorithms and Systems (H), Functional Programming (H), Human-Computer Interaction (H), Information Retrieval (H), Machine Learning (H), Mobile Human Computer Interaction (H), Modelling Reactive Systems (H), Multimedia Systems and Applications (H), Research Methods and Techniques (H), Safety Critical Systems (H), Advanced Software Engineering Practices (H).

Advanced Operating Systems (M), Cyber Security Fundamentals (M), Enterprise Cyber Security (M), Human-

Centred Security (M), Information Retrieval (M), IT Architecture (M), Machine Learning (M), Mobile Human Computer Interaction (M), Modelling Reactive Systems (M), Multimedia Systems and Applications (M), Safety Critical Systems (M).

In addition, combined students undertake the following compulsory project:

Course Title	Course Code	Credits	Core	Optional	Semester(s) taught
Individual Project (Combined)	COMPSCI4024P	20	X		1 & 2

Level 5

To progress to Level 5 MSci (Combined), a student needs an average aggregate score of 12 from Level 4 and must also meet the requirements of the other school.

Students failing to achieve the minimum level for progression will be assessed as if they were Combined Honours Computing Science students and will be awarded the appropriate Combined Honours BSc qualification based on their results in Levels 3 and 4, using the normal weighting for the relevant BSc Combined Honours degree.

A total of 60 credits of the students' work in year 5 will be undertaken in the School of Computing Science. A student's curriculum for year 5 must include a level M project which may be taken in either another subject (40 credits) or Computing Science (40 credits) or jointly supervised (40 credits). This means that there are three possible structures for year 5:

Course Title	Course Code	Credits	Core	Optional	Semester(s)
OPTION 1 (120 CREDITS)					
Research Methods and Techniques (M)*	COMPSCI5025	10	X		1
Project Research Readings in CS	COMPSCI5003	10	X		2
MSci Research Proposal & Project (Half)	COMPSCI5072P	40	X		1 & 2
Non-Computing Science options (level M) 60 credits					
OPTION 2 (120 CREDITS)					
Research Methods and Techniques (M)*	COMPSCI5025	10	X		1
5 Computing Science Level M options		50			
Non-Computing Science Project (Level M)		40			
Non-Computing Science options (Level M, 20 credits)		20			
OPTION 3 (120 CREDITS)					
Research Methods and Techniques (M)*	COMPSCI5025	10	X		1
Project Research Readings in CS	COMPSCI5003	10	X		2
MSci Research Proposal & Project (Half)	COMPSCI5072P	40	X		1 & 2
2 Computing Science Level M options		20			
NonComputing Science options (Level M)		40			

* If a student has already taken Research Methods and Techniques 4 (COMPSCI4065) in Level 4, RMT should be replaced by one 10 credit level M elective course. The list of electives can be found in the Undergraduate Class Guide.

Honours Assessment

Within each year, courses are weighted according to credits. The Computing Science half of the Honours assessment combines the aggregated scores from levels 3, 4 and 5 in the ratio 24%:36%:40%.

The requirements for the other subject can be found in their Programme Specifications.

For more information on courses see the University course catalogue:
http://www.gla.ac.uk/coursecatalogue/

Regulations

This programme will be governed by the relevant regulations published in the University Calendar. These regulations include the requirements in relation to:

(a)   Award of the degree
(b)   Progress
(c)   Early exit awards
(d)   (For undergraduate programmes, where appropriate) Entry to Honours

http://www.gla.ac.uk/services/senateoffice/calendar/

13. Programme Accredited By:

14. Location(s):

Glasgow

15. College:

College of Science and Engineering

16. Lead School/Institute:

Computing Science [REG30200000]

17. Is this programme collaborative with another institution:

No

18. Awarding Institution(s):

University of Glasgow

19. Teaching Institution(s):

20. Language of Instruction:

English

21. Language of Assessment:

English

22. Relevant QAA Subject Benchmark Statements (see Quality Assurance Agency for Higher Education) and Other External or Internal Reference Points:

The following web links introduce the benchmarks that are used to guide and assess our programmes. We monitor our courses against these on a regular basis, further information about this process and about recent developments in these benchmarks can be obtained direct from the school.

http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Computing.aspx

http://www.bcs.org/server.php?show=nav.7065

23. Additional Relevant Information (if applicable):

Support for students is provided by the Postgraduate/Undergraduate Adviser(s) of Studies supported by University resources such as the Student Learning Service (www.gla.ac.uk/services/sls/), Counselling & Psychological Services (www.gla.ac.uk/services/counselling/), the Disability Service (www.gla.ac.uk/services/studentdisability/) and the Careers Service (www.gla.ac.uk/services/careers/).

24. Date of approval:	14/09/2016