School of Computer Science

Computer Science (CS) modules

CS1002 Object-Oriented Programming

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	1
Academic year:	2017/8 & 2018/9			
Planned timetable:	3.00 pm Mon and Tue			
This module covers problem-solving skills, object-oriented modelling and programming. Programming exercises include object-oriented modelling, computer graphics and data structures.				
Programme module type:	Compulsory for Computer Science BSc, Joint Computer Science degrees, Computer Science MSci, Computer Science (Gateway) programme			
Pre-requisite(s):	Mathematics (Higher or A-Level at Grade A)		**Anti-requisite(s):**	CS2101
Required for:	CS1003, CS1006, CS2001, CS2006			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 1 x 3-hour practical class.			
	Scheduled learning: 80 hours		**Guided independent study:** 120 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	2-hour Written Examination = 60%, Existing Coursework = 40%			
Module coordinator:	first-coord-cs@st-andrews.ac.uk			

CS1003 Programming with Data

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	2
Academic year:	2017/8 & 2018/9			
Planned timetable:	3.00 pm Mon and Tue			
This module explores various aspects of data storage, processing and analysis. Programming skills are reinforced through a range of exercises and practicals covering various aspects of data handling. Topics include: persistent data formats; files and databases; file manipulation; binary and textual data; data processing using open source libraries; database design and use; object-relational mapping frameworks; processing and analysing data; issues of scale. Themes related to current research in the area of data science and big data are emphasised.				
Programme module type:	Compulsory for Computer Science BSc, Joint Computer Science degrees, Computer Science MSci, Computer Science (Gateway) programme			
Pre-requisite(s):	CS1002		**Anti-requisite(s):**	CS2101
Required for:	CS2001			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 1 x 3-hour practical class.			
	Scheduled learning: 88 hours		**Guided independent study:** 112 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	2-hour Written Examination = 60%, Existing Coursework = 40%			
Module coordinator:	first-coord-cs@st-andrews.ac.uk			

CS1005 Computer Science in Everyday Life

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	1
Academic year:	2017/8 & 2018/9			
Planned timetable:	12.00 noon			
This module introduces 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, health informatics, mobile computing and social networking sites. Students are led to develop an understanding of some fundamentals of Computer Science, as well as gaining transferable skills such as critical reading, research in the technical literature, data analysis and essay writing.				
Programme module type:	Optional for all Undergraduate programmes within the School of Computer Science.			
Learning and teaching methods and delivery:	**Weekly contact**: 3 lectures and 1 tutorial.			
	Scheduled learning: 40 hours		**Guided independent study:** 160 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	2-hour Written Examination = 60%, Existing Coursework = 40%			
Module coordinator:	first-coord-cs@st-andrews.ac.uk			

CS1006 Programming Projects

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	2
Academic year:	2017/8 & 2018/9			
Planned timetable:	11.00 am			
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.				
Programme module type:	Optional for all Undergraduate programmes within the School.			
Pre-requisite(s):	CS1002			
Learning and teaching methods and delivery:	**Weekly contact**: 1 tutorial and 2 x 3-hour practical class (x 11 weeks), fortnightly lecture.			
	Scheduled learning: 83 hours		**Guided independent study:** 117 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 0%, Practical Examinations = 0%, Coursework = 100%			
	As used by St Andrews: Coursework = 100%			
Re-assessment pattern:	No Re-assessment available			
Module coordinator:	first-coord-cs@st-andrews.ac.uk			

CS1101 Computer Science Skills

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	Whole Year
Academic year:	2017/8 & 2018/9			
Availability restrictions:	Available only to students on the Computer Science (Gateway).			
Planned timetable:	To be arranged.			
This module develops academic and transferable skills in problem-solving, team-working, information retrieval and analysis, and study skills. It is a core module of the Computer Science (Gateway) programme.				
Programme module type:	Compulsory for Computer Science (Gateway) Programme.			
Learning and teaching methods and delivery:	**Weekly contact**: 5 tutorials, 3 practical classes and 1 lecture.			
	Scheduled learning: 93 hours		**Guided independent study:** 107 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 0%, Practical Examinations = 0%, Coursework = 100%			
	As used by St Andrews: Coursework = 100%			
Re-assessment pattern:	No Re-assessment available			
Module coordinator:	first-coord-cs@st-andrews.ac.uk			

CS2001 Foundations of Computation

SCOTCAT Credits:	30	SCQF Level 8	**Semester:**	1
Academic year:	2017/8 & 2018/9			
Planned timetable:	9.00 am			
This module introduces the fundamental algorithms, data structures and ideas about formal languages lying at the heart of modern software, and develops skills in programming and analysis.				
Programme module type:	CS2101 or CS2001 is compulsory for Computer Science BSc, Joint Computer Science degrees, Computer Science MSci			
Pre-requisite(s):	CS1002, CS1003		**Anti-requisite(s):**	CS2101
Required for:	CS2002, CS2003, CS2006, CS3051, CS3052, CS3099, CS3101, CS3102, CS3104, CS3105, CS3106, CS3301, CS3302			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 2 x 3-hour practical class.			
	Scheduled learning: 110 hours		**Guided independent study:** 190 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 3-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	3-hour Written Examination = 60%, Existing Coursework = 40%			
Module coordinator:	second-coord-cs@st-andrews.ac.uk			

CS2002 Computer Systems

SCOTCAT Credits:	30	SCQF Level 8	**Semester:**	2
Academic year:	2017/8 & 2018/9			
Planned timetable:	9.00 am			
This module develops skills in programming in C, systems programming, digital logic and low-level computer organisation.				
Programme module type:	Compulsory for Computer Science BSc, Joint Computer Science degrees, Computer Science MSci			
Pre-requisite(s):	CS2001 or CS2101			
Required for:	CS3051, CS3052, CS3099, CS3101, CS3102, CS3104, CS3105, CS3106, CS4201, CS4202, CS4203			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 2 x 3-hour practical class.			
	Scheduled learning: 121 hours		**Guided independent study:** 179 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 3-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	3-hour Written Examination = 60%, Existing Coursework = 40%			
Module coordinator:	second-coord-cs@st-andrews.ac.uk			

CS2003 The Internet and the Web: Concepts and Programming

SCOTCAT Credits:	30	SCQF Level 8	**Semester:**	1
Academic year:	2017/8 & 2018/9			
Planned timetable:	11.00 am			
This module introduces the student to the Internet and the World Wide Web from a Computer Science perspective. It consists of two complementary streams: computer networks and web-based computing. Both streams introduce key concepts, current technologies, programming abstractions and the practical aspects of developing web-based and network applications.				
Programme module type:	Optional for Computer Science BSc, Joint Computer Science degrees, Computer Science MSci			
Co-requisite(s):	CS2001 or CS2101		**Required for:**	CS3102, CS3301
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 2 x 3-hour practical class.			
	Scheduled learning: 110 hours		**Guided independent study:** 190 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 3-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	3-hour Written Examination = 60%, Existing Coursework = 40%			
Module coordinator:	second-coord-cs@st-andrews.ac.uk			

CS2006 Advanced Programming Projects

SCOTCAT Credits:	30	SCQF Level 8	**Semester:**	2
Academic year:	2017/8 & 2018/9			
Planned timetable:	11.00 am			
This module introduces the functional and dynamic programming paradigms, using languages such as Haskell and Python. Understanding is reinforced through extensive practical exercises.				
Programme module type:	Optional for Computer Science BSc, Joint Computer Science degrees, Computer Science MSci			
Pre-requisite(s):	CS2001 or CS2101			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 2 x 3-hour practical classes.			
	Scheduled learning: 121 hours		**Guided independent study:** 179 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 0%, Practical Examinations = 0%, Coursework = 100%			
	As used by St Andrews: Coursework = 100%			
Re-assessment pattern:	No Re-assessment available			
Module coordinator:	second-coord-cs@st-andrews.ac.uk			

CS2101 Foundations of Computation (Accelerated)

SCOTCAT Credits:	40	SCQF Level 8	**Semester:**	1
Academic year:	2017/8 & 2018/9			
Availability restrictions:	Available only to direct second year entrants.			
Planned timetable:	To be arranged.			
This module is an accelerated version of CS2001. It includes necessary background material from core first-year modules, as well as the same content as CS2001.				
Programme module type:	CS2101 or CS2001 is compulsory for Computer Science BSc, Joint Computer Science degrees, Computer Science MSci			
Anti-requisite(s):	CS1002, CS1003, CS2001			
Learning and teaching methods and delivery:	**Weekly contact**: 5 lectures, 2 tutorials and 3 x 3-hour practical classes.			
	Scheduled learning: 160 hours		**Guided independent study:** 240 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 3-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	3-hour Written Examination = 60%, Existing Coursework = 40%			
Module coordinator:	second-coord-cs@st-andrews.ac.uk			